Textile World

SEPTEMBER, 1943

TECHNOLOGY DEPT.

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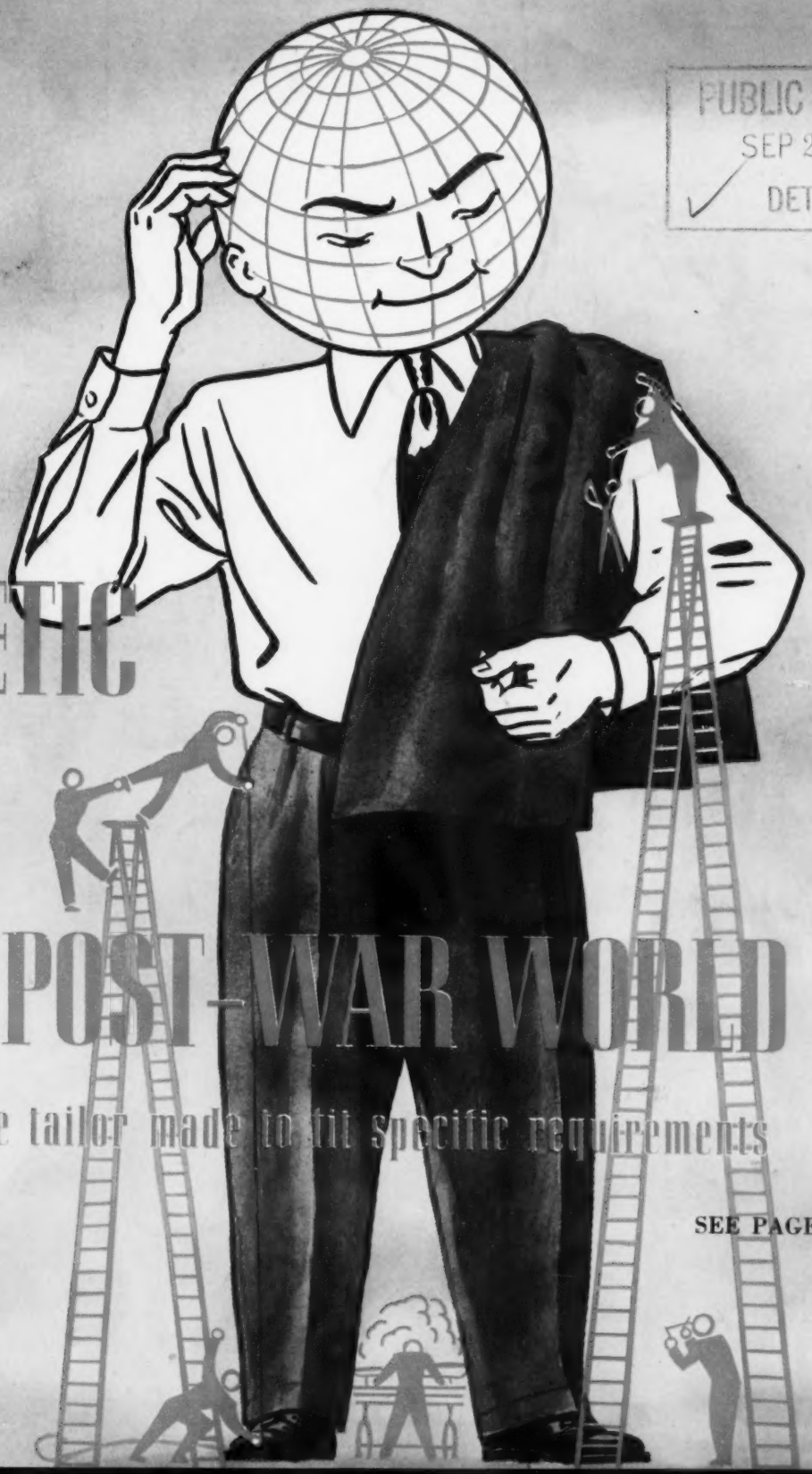

SYNTHETIC FIBERS for the POST-WAR WORLD

will be tailor made to fit specific requirements

SEE PAGE 105

Official Emblem of the U. S. Navy

WE SALUTE THE U. S. NAVY

. . . and the American manufacturers

whose skill and effort provide them

with the world's best equipment.

COMMERCIAL FACTORS CORPORATION

Fred'k Vietor & Achelis, Inc. Established 1828

Scheler, Schramm & Vogel Established 1838

Peierls, Buhler & Co., Inc. Established 1893

TWO PARK AVENUE, NEW YORK

SEVENTY-SEVEN FRANKLIN STREET, BOSTON

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Keeping Up Production of Textiles

Is getting to be a Problem ✣ Many loomfixers are leaving the home job for the Big Money on the Munitions Jobs ✣ Short-handed mills have had to cut off one shift

You may be next

If Shortage of Help Threatens You with a Drop from 3 Shifts to 2

Why Add to Your Worries

By Using Mongrel Repair Parts? They Handicap Your Loomfixers

Draper Parts Make Fixing Easier

DRAPER CORPORATION

speedometer not needed . . .

One of the most important factors in accuracy of gun-fire today is the velocity at which a shell travels.

Formerly, variations in the structure and dryness of the powder made great differences in shell velocity . . . and hence, made accurate gun-fire correspondingly difficult.

Today—thanks to technical advances in powder-making *plus air conditioning*—there is so little variation in powder that gunners can know *exactly* what shell velocity will be. Result—a more accurate gun-fire that has already contributed to important American victories.

Air conditioning keeps powder at the correct temperature and humidity levels, not only in the making of the powder, but also in storage places ashore and in powder magazines on shipboard.

To meet exacting requirements like this, General Electric engineers have developed *air conditioning* and *industrial refrigeration* equipment that is more efficient, more compact, more flexible.

Now devoted to war, these improvements will be turned to innumerable peacetime uses when hostilities cease. Now for war . . . later for peace . . . turn to General Electric for efficient, compact air conditioning and industrial refrigeration.

☆ BUY WAR BONDS ☆

General Electric Company, Air Conditioning and Commercial Refrigeration Divisions, Section 439, Bloomfield, New Jersey.

Air Conditioning by

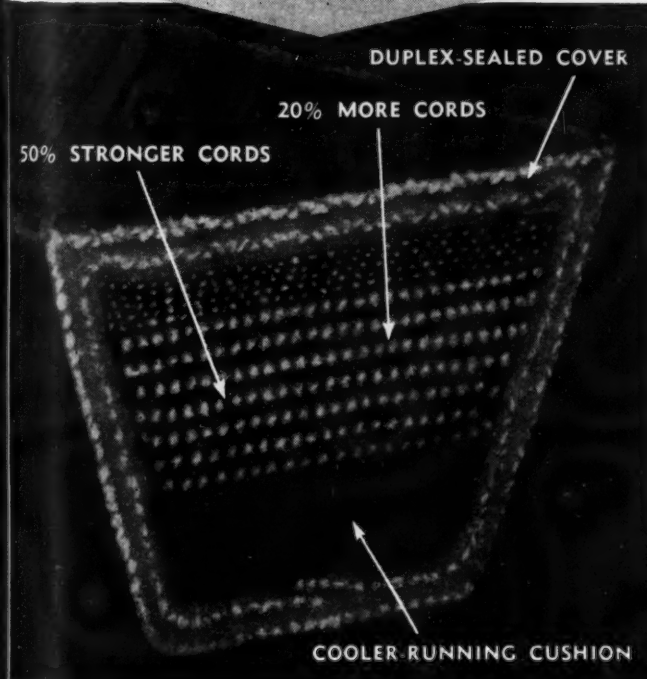
GENERAL ELECTRIC

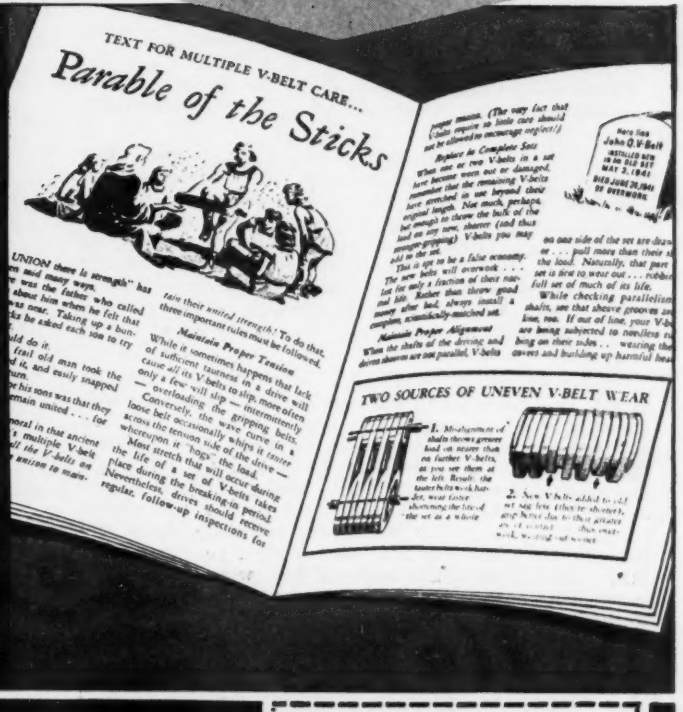
Listen to the General Electric radio programs: "THE HOUR OF CHARM", Sundays, 10 P.M., E W T, on N B C . . . "THE WORLD TODAY" News, Weekdays, 6:45 P.M., E W T, on C B S

HERE'S NEW Double-Trouble for V-Belt Wear!

1 BUY THE BEST BELTS: You'll get the "jump" on maintenance with Texrope Super-7's design-against-wear construction! 20% *more* pulling cords. 50% *greater strength* in every one because they're made by the special Flexon process. That adds up to extra pulling power, less stretch. A cool-running rubber cushion fights flexing heat. Tough Duplex-Sealed cover seals belt against grit, grime, and moisture. When you *do* need new belts *invest in the best* — Texrope Super 7!

2 USE THE BEST CARE: Over 75,000 men in industry are getting a head start on longer V-Belt life because they've got Allis-Chalmers' new handbook: "Plain Facts on Wartime Care of Rubber V-Belts." It gives you the inside story on "how V-belt anatomy affects maintenance"... "good-rule-of-thumb for tension"... a lot of other tips. Excellent for training new men, it's packed with valuable data. For your *free* copy, tear off the coupon and send today.





ALLIS-CHALMERS

TEXROPE* SUPER-7 V-BELTS

WE WORK FOR VICTORY — WE PLAN FOR PEACE

*Trade mark registered U. S. Patent Office. Texrope Super-7 V-Belts are the result of the cooperative research and design genius of two great companies—Allis-Chalmers and B. F. Goodrich—and are sold exclusively by Allis-Chalmers. Available in all sizes.

ALLIS-CHALMERS MFG. CO.
Milwaukee, Wisconsin

Gentlemen:

Yes, I would like to receive free of charge a copy of your "Plain Facts on Wartime Care of V-Belts".

(Name) _____

(Title) _____

(Company) _____

(Street Address) _____

(City and State) _____ A 1628-12

British Home Life Today

Comments by Henry G. Lord

I have a friend in London . . . an Englishman who was in business in this country for a number of years; then returned to England some ten years ago. He continues to keep in touch with his American friends and since the beginning of the war he and I have corresponded regularly.

His last letter contains so much of the daily lives and thoughts of the average Britisher that I am quoting liberally from it.

He writes:

"I am very interested to read of the effects of food and other rationing with you. Of course, it's something we are all 'enjoying?'

"There are some things you have and we miss. For instance, 'yes, we have no bananas,' likewise we 'grown-ups,' have no oranges, and we never see lemons or grapefruit. Peaches are also absent, for all practical purposes. We get a few English hot-house peaches but there are so few that the price is simply impossible. I saw a box of about a dozen in a shop this week, priced 8/6 *each*. You can imagine how many people will be able or willing to pay two dollars for one peach. White bread disappeared long ago.

"Meat; we get ½ pound (say 25¢ worth) a week, and of this two pennyworth must be corned beef. (My wife makes marvellous corned-beef hash). I gather that you also are getting short of meat, so know how far this ration goes for a week's supply. And we don't get much in the restaurants or hotels either. I've not seen a steak for months and months. Last week I was with a friend at the Savoy for lunch. We had soup, Spam and rhubarb tart; this cost 8/6. We did not get there until 1:15 and by then all main dishes were 'off.' Usual lunch hour here is 1 o'clock, but the result of shortages is that people go earlier to get the pick.

"Our sausages are weird and wonderful. They consist of 35% meat, 20% soya beans and 45% bread.

"Production of saucepans and kettles is based on each household being allowed one of each every four years.

"No linen sheets are allowed to be made. The manufacture of bedspreads, quilts (comforters) and tablecloths, is forbidden.

"Paper is one-fifth of pre-war supply. Newspapers are cut accordingly; new letterheads are now reduced in size; duplicating paper must be used on both sides; envelopes are used over and over again. You must take your own paper when you buy fish, vegetables, meat, etc.

"But our babies are looked after—they are our number one priority.

"Here are a few examples of recent indirect taxation:

Article	Unit	Retail Price	Amount of Duty Included in Price
Pipe tobacco	ounce	2s. 2½d.	1s. 8½d.
Cigarettes	20	2s. 4d.	1s. 8½d.
Beer (if such weak stuff can be called beer)	pint	1s. 0d. (25¢)	7¼d.
Whiskey	bottle	25s. 9d.	18s. 4½d.
Sugar (granulated)	pound	3d.	2¼d.
Tea	pound	2s. 10d.	6¼d.
Matches	box of 50	1½d.	½d.
Utility lighters	each	6s. 6d.	2s. 6d.

"Our sales tax varies from 33-1/3 up to 100% (for luxury items).

"Do you know that we now produce, here in England, a greater farm output per acre cultivated and per man employed than has ever been achieved in any country in the world? And many hundreds of thousands of acres are added every year. Tractors from America are a big help in this matter.

"In addition to this, every small garden has its vegetable section and this section grows larger all the time. In our small garden we grow probably three times as many vegetables as before the war.

"I should say the common view is that gardening helps the war effort; and we can't expect you or anyone else to help us unless we do everything possible for ourselves by increasing production and reducing consumption."

I think what he has to say about General Eisenhower is very interesting. I had wondered what the reaction was in Great Britain to putting the supreme command of North Africa in the hands of an American. This is his comment:—

'A grand piece of team-work.' This is a common expression here on the magnificent show in Tunisia.

"General Eisenhower is tremendously admired here—and that admiration extends to the American troops who fought so splendidly with our boys and the French.

"Eisenhower's modesty, his qualities as a leader, his generous recognition of the fighting capacity of all the Allies' troops has made a deep impression here.

"In my judgment he has laid a foundation of common understanding and sympathy that will help to make our continued cooperation easier and stronger."

I am always impressed with the cheerful tone and willing acceptance of war conditions, not only by my friend, but by almost all the Britishers that I come in contact with. Frankly, I do not get the same reaction from contacts with many of my American acquaintances.

Perhaps we would more cheerfully make those sacrifices, which some of us find so burdensome, if 48,000 of our civilian men, women and children had been killed by bombing as they have been in Great Britain.

HENRY G. LORD, *Vice-President of McGraw-Hill Publishing Co. and Founder of Textile World*

SPEEDS UP INVASION UMBRELLAS for SKY COMMANDOS

Official O.W.I. photo

SUNOTEX OILS

help step up slashing rate from 20 to 32 yards per minute

Parachutes by the thousands . . . Nylon and silk by the millions of yards in the shortest possible time — that was the demand that confronted textile men of America. And here's how one large New England mill stepped-up their production rate by speeding up slashing 60%.

According to the operator slashing was slow and it was difficult to run faster than 20 yards per minute . . . production was poor . . . and finished products not up to desired standards. A Sun Textile man was called in. He recommended a revised formula . . . previous competitive products were discarded for Sunotex RS 48. Slashing speed was increased from 20 to 32 yards per minute . . . warp condition improved.

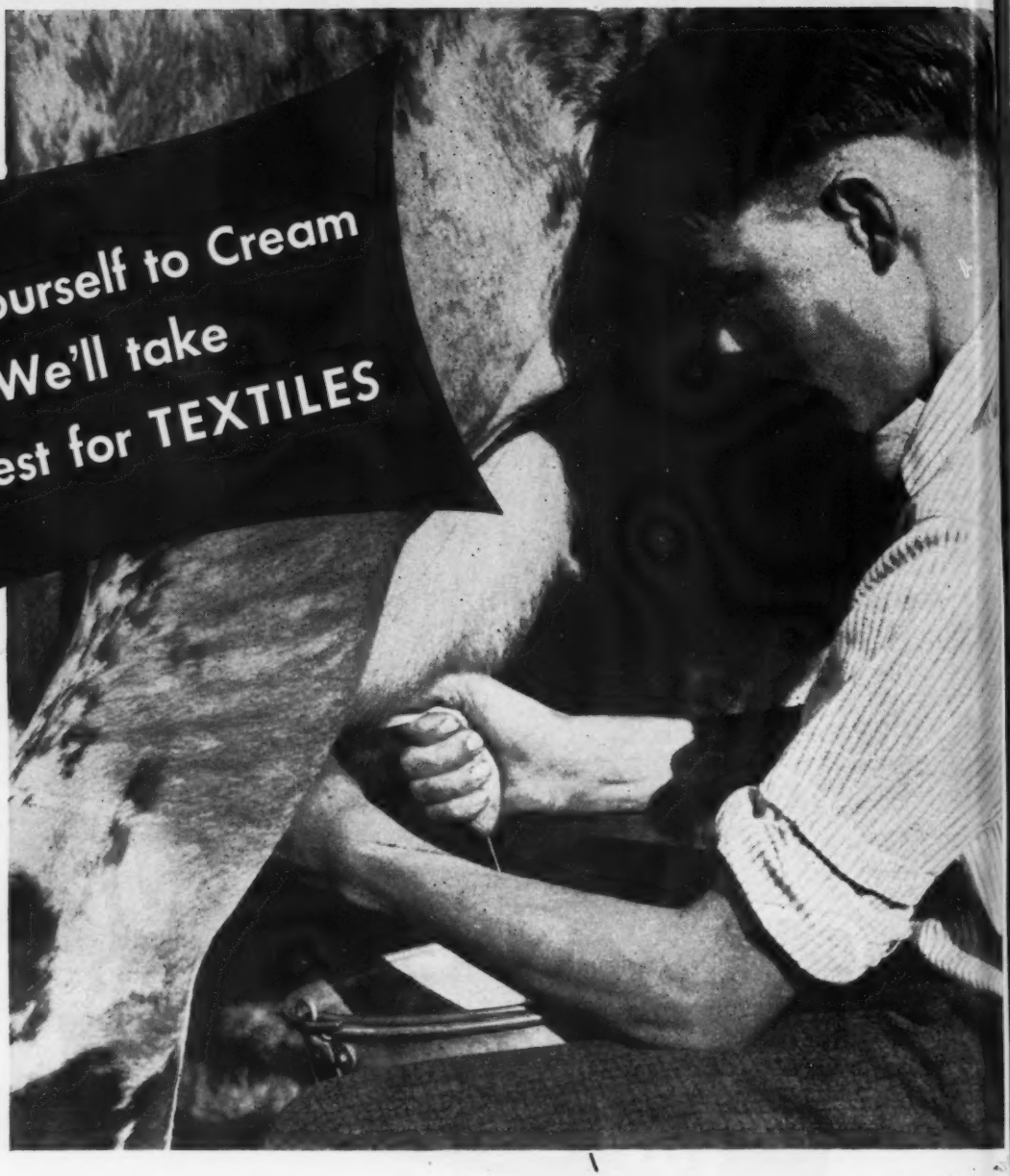
Whether you are working on war orders or those of essential civilian goods you'll find it well worthwhile taking advantage of the services offered by the Sun Textile man. His services and the products he has to offer for processing wool, rayon, silk or Nylon are yours to use to improve your production. Write today for complete information.

SUN OIL COMPANY · Philadelphia

SUNOCO

SUN INDUSTRIAL PRODUCTS — HELPING INDUSTRY HELP AMERICA

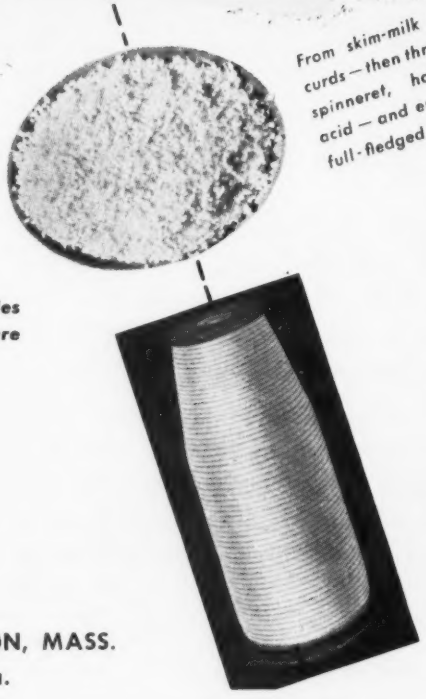
Help yourself to Cream We'll take the rest for TEXTILES



Yes, fibres from skim-milk, seaweed or soy beans — whatever basic material is used today or whatever will be used in the future — Saco-Lowell engineering can be counted upon to provide efficient equipment for spinning it. Rely on Saco-Lowell's extensive research to be abreast of the most advanced scientific developments, so that whether the fibres are cellulose, viscose, protein or blends thereof, Saco-Lowell equipment will always make good yarns.

Now is the time to prepare for the new era — make the preliminary studies leading up to the "Saco-Lowell-izing* Program" — leading to future profits and prosperity for your mill.

*SACO-LOWELL-IZE ... To utilize floor space so as to achieve the ideal in continuity of production; to coordinate all successive steps in processing; to reduce waste, spoilage and useless transportation of stock; and to attain the greatest economy in maintenance and operating costs.



From skim-milk to casein curds — then through a tiny spinneret, hardened in acid — and emerging as a full-fledged textile fibre

SACO-LOWELL SHOPS 60 BATTERYMARCH ST., BOSTON, MASS.
Charlotte, N. C. Greenville, S. C. Atlanta, Ga.

CRASHING INTO PRINT ON THE NORTH AFRICAN FRONT!

DURING all those thrilling months when the public eye was focused on the military phase of the allied battle for Africa . . . the textile industry was wrestling with the problem of supplying fabrics suitable to this particular colonial trade.

Contributing to the solution of the problem . . . Calco Technical Service drew on its files of authentic French fabrics for the African market. Correlated to the necessary printing specifications, reproductions of these fabrics provide a handy guide for American finishers.

If you are making fabrics for Lend-Lease . . . your Calco representative will see that you get a copy of this latest Bulletin.

But this Bulletin, like the many others which are published for the industry, represents only one phase of Calco Technical Service. Its laboratories and technicians are equipped to help you solve your specific color problems.

CALCO CHEMICAL DIVISION
AMERICAN CYANAMID COMPANY
BOUND BROOK, NEW JERSEY

Boston • Philadelphia • Providence • New York • Charlotte • Chicago

Finnell QUALITY

Can Serve You Better Than Ever

In Caring for Mill Floors ☆ ☆

—for now, of all times, floors need the *extra* protection provided by *Finnell* Treatments and Maintenance Supplies.

Finnell Sealers and Waxes not only aid in making floors last, and in simplifying maintenance, but, due to the long-wearing qualities of the finishes, they save frequent application—conserve materials and man-hours, as do *Finnell* fast, safe Cleansers.

Year in and year out—for four decades—dependable *Finnell Quality* has been demonstrated on floors of the nation's textile mills. Today, it can serve better than ever!

For consultation, free floor survey, or literature on any *Finnell* product, phone or write nearest *Finnell* branch or Finnell System, Inc., 1909 East Street, Elkhart, Indiana.

A Complete Line of

FLOOR CLEANSERS · SEALERS · WAXES

- Solarbrite Scrub Soap
- Finola Scouring Powder
- Century Scouring Powder
- Solar Soap Powder
- Sanax Wax Cleaner
- Finnell Rubber Cleaner
- Asesco Solvent Cleanser
- Setol *All-Purpose Cleaner*
- Finnell Fulfil *An Oil Filler, Sealer*
- Finnell Terrazzo-Fil
- Finnell Gym-Fil
- Gloss Seal *Several Types*
- Traffic Seal
- Fino-Gloss Liquid Wax *Several Types*
- Finnell-Kote *A Solid Wax*
- Finnell Liquid Kote
- Finnell Liquid Wax
- Finnell Paste Wax
- Finnell Cream Kote

OTHER *Finnell* PRODUCTS

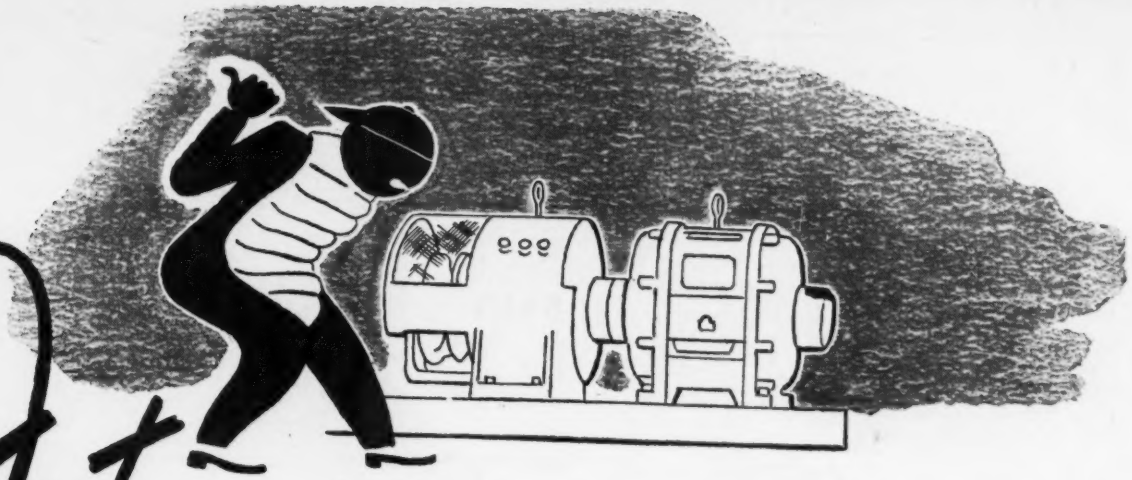
- Han-San Hand Soap
- Han-Kleen *Heavy Duty Hand Soap*
- Killum, *An Insecticide*
- Rug Shampoo
- Crystal Cleanser *For Dishwashing*
- Floor-Maintenance Equipment
- Accessories

FINNELL SYSTEM, INC.

Pioneers and Specialists in

FLOOR-MAINTENANCE EQUIPMENT AND SUPPLIES

BRANCHES IN ALL PRINCIPAL CITIES



Out

FOR THE DURATION ON WEDNESDAY

BACK IN "PITCHING" ON SATURDAY

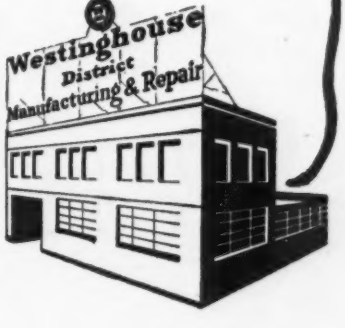
PRODUCTION THREATENED 9:00 A.M. WEDNESDAY BY GENERATOR FAILURE. BROKEN DOWN 50 KW. MOTOR GENERATOR SET DELIVERED TO WESTINGHOUSE DISTRICT MANUFACTURING AND REPAIR PLANT. CLEANED, TREATED STATOR WINDINGS. REPAIRED ROTOR RESISTOR. CORRECTED GROUNDED COIL. INSULATED AND TREATED FIELD COILS. ASSEMBLED, TESTED AND DELIVERED SATURDAY, 11:00 A.M.

Westinghouse

DISTRICT MANUFACTURING AND REPAIR

J-90464-A

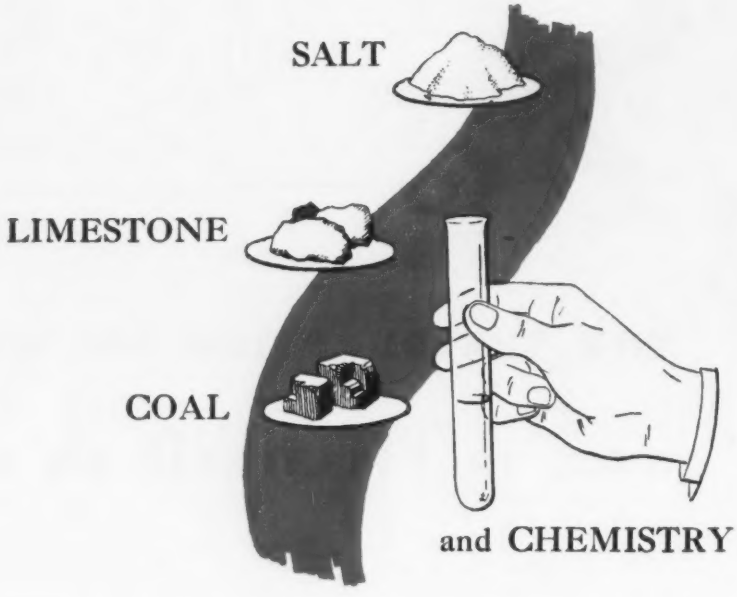
WHEN **ELECTRICAL EQUIPMENT NEEDS MAINTENANCE OR REPAIR . . . PHONE THE NEAREST OFFICE OF WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY FOR**



EMERGENCY SERVICE

33 M & R PLANTS . . . ONE NEAR YOU!

FOR VICTORY BUY MORE WAR BONDS



an unbeatable team for VICTORY

Taken by themselves, salt, limestone and coal may not have the drama of guns, tanks and planes. But put them together, fused and processed by chemistry, and you have soda ash, caustic soda, calcium chloride, sodium bicarbonate and others . . . all in demand for production of the implements and munitions of war. Pass electricity through salt brine—and you have chlorine and caustic soda.

Salt, limestone, coal and chemistry are an unbeatable team for victory.

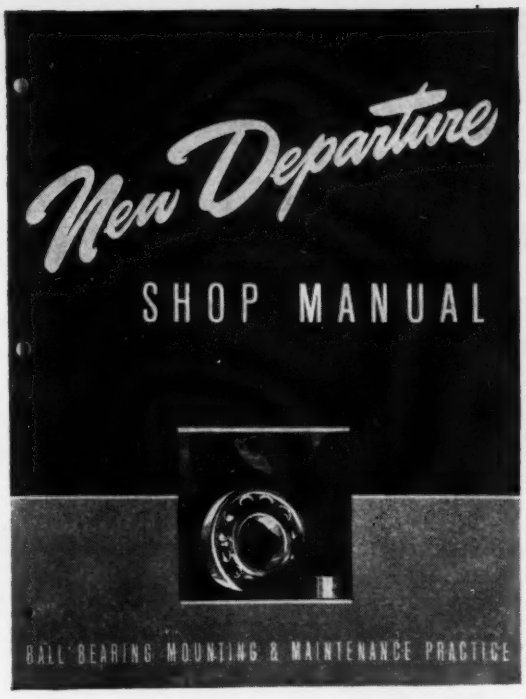
That's why we are so intent that every single pound of chemicals for industry meets exact specifications. We realize that victory is up to industry. Industry is made up of big and little plants, each doing its level best in its own way. And all industry depends for peak production on having the right ingredients.

Columbia Chemicals are an important asset in this speeded-up mobilization of the nation's industrial power.

PITTSBURGH
PLATE GLASS COMPANY
COLUMBIA CHEMICAL DIVISION
GRANT BUILDING . . . . . PITTSBURGH, PA.
Chicago • Boston • St. Louis • Pittsburgh • New York
Cincinnati • Cleveland • Minneapolis • Philadelphia • Charlotte

COLUMBIA CHEMICALS

SODA ASH · CAUSTIC SODA · LIQUID CHLORINE · SODIUM BICARBONATE · SILENE (Hydrated Calcium Silicate) · CALCIUM CHLORIDE
SODA BRIQUETTES · MODIFIED SODAS · CAUSTIC ASH · PHOSFLAKE · CALCENE (Precipitated Calcium Carbonate) · CALCIUM HYPOCHLORITE



HERE'S ONE ANSWER

TO THIS MILL PROBLEM

Textile Machinery Feels Heavy Strain

Much of the textile machinery of New England will have to be replaced with new and more efficient equipment when the war is over due to the heavy strain of the past several years, it was indicated today.

Many of the machines have been operated 80 hours a week, or twice the normal operating time, for the last three years.

Textile machinery makers are reported to have orders on hand that will keep them busy for at least a year when war restrictions are lifted.

At present, it is planned to recondition looms and other equipment removed from the mills of New England and send it to South America, Europe and China. Apparently this will be done under lend-lease.

Under this plan, the industry of nations to be rehabilitated would secure good equipment and New England mills would obtain new and more efficient equipment that would enable them to meet the keen competition expected to develop when the war is over.

The New Departure Shop Manual should be read by every man responsible for the correct installation of ball bearings for maximum service and long life. Send for your copy and tell us how many additional copies would be required to supply your interested personnel. . . . New Departure Division General Motors Corporation, Bristol, Conn. . . . Chicago and Detroit.

New Departure

THE FORGED STEEL BEARING

has a major responsibility in the whole ball bearing war production program

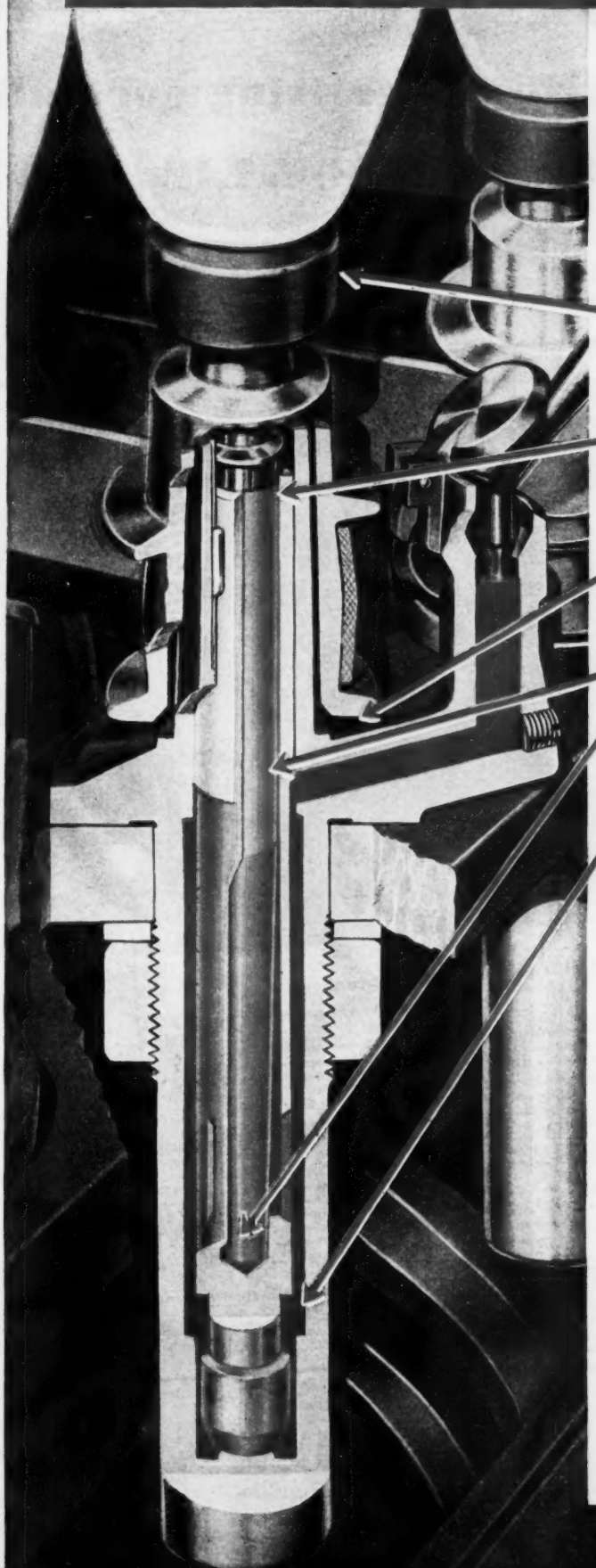
3193

☆ ☆ ☆ Prove your patriotism — Buy War Bonds ☆ ☆ ☆

It's No Accident!
with SPUN RAYON equipment
WHITIN leads again!
In leading mills manufacturing quality spun-rayon goods Whitin equipment is already proving its right to leadership
MODEL "D" CARD
MODEL "L" DRAWING
SUPER-DRAFT ROVING
LONG DRAFT SPINNING
New, specialized machinery for processing synthetic fibers up to 3" in length is not born overnight. Long years of patient, exhaustive research and experimentation form the background for the equipment we are now prepared to build.
Certainly, there are restrictions on buying new machinery today, but there are no restrictions on post-war planning. Plan now with WHITIN!
WHITIN MACHINE WORKS
WHITINSVILLE, MASSACHUSETTS, U. S. A.
CHARLOTTE, N. C.
ATLANTA, GA.

ONE OF A SERIES OF SUGGESTIONS TO AID PRODUCTION

HOW TO SOLVE OPERATING PROBLEMS WITH *Correct Lubrication*



USE GARGOYLE VELOCITE OILS FOR:

Minimum Vibration

Low Power Consumption

Minimum Fog

Minimum Wear

Clean Bases

TODAY YOU ARE USING increased spindle speeds and heavier packages—yet it is more important than ever that your spindles run with minimum downtime.

Gargoyle Velocite Oils will help you meet both these requirements.

Their performance in actual use, over a period of several years, has proven that they are the finest spindle oils made.

The picture at the left shows where these oils work for you.

If you want greater yarn production—along with reduced power consumption—we recommend a Gargoyle Velocite Oil.

SOCONY-VACUUM OIL CO., INC.—Standard Oil of New York Division • White Star Division • Lubrite Division • Chicago Division • White Eagle Division Wadhams Division • Magnolia Petroleum Co.• General Petroleum Corp. of California.

GARGOYLE Lubricants

CALL IN SOCONY-VACUUM

ONE OF A SERIES OF SUGGESTIONS TO AID PRODUCTION

Answering the call to HELP

Tubize advertising goes all-out to support WOMANPOWER...a help to every

The **MANPOWER** problem has become in large measure a **WOMANPOWER** problem—the women now working in your plant and in every other plant must stay on the job...and at least TWO MILLION women not working now must be recruited to take over the critical civilian jobs vacated by men in the Armed Forces. It has been our privilege, working closely with The War Advertising Council and the Office of War Information, to put the whole power of Tubize national advertising this Autumn behind that project.

Will it take a BOMB to break up the afternoon bridge game?

Must bullets whine and the sirens shriek before all American women realize that the time is here. The time for them to get out and drive a truck, load a freight car, carry a waitress's tray, work in a day nursery, operate an elevator?

It isn't pleasant, no! But neither is war. And the *war won't be won* unless our men abroad *are fighting*, are backed up by our women at home, *working*.

Read the want ads in your home paper to see what war jobs there are for women in your area, then register at your local U.S. Employment Service. There are paying jobs in many areas with training for the inexperienced. Get out and work 4 hours, 8 hours, 10 hours if you can...*but work*... and stick to it till the war is won.

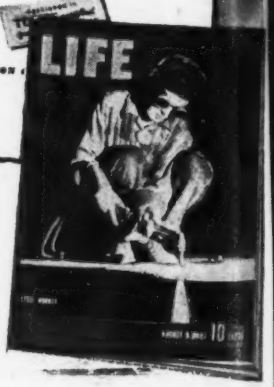
The idle woman will be a very lonely soul this year!

* * *

WHATEVER WAR WORK you do, may we ask *one thing more. Rayon is important in military and economic warfare. So that it may continue to serve you at home as well, we ask you to buy carefully, and to conserve "according to the directions on the tag."*

Prepared in cooperation with the War Advertising Council and the O.W.I. by TUBIZE CHATILLON

A Guy Gibson dress that will help you in your wartime quest for economy and conservation. Made of Everglaze, a fabric of Tubize Certified Quality Rayon, in black and white with self ruffles and tiny gold buttons. Sizes 9 to 17, about $13. The Tubize Certified Quality Label in the seam indicates that the fabric has been tested, and is certified to be satisfactory as to strength, color and cleanability. For nearest store write to Garmac Garment Co., Inc., 1617 Grand Avenue, Kansas City, Mo.



Women must get to work in the vital civilian industries—the fighting fronts and the home front are absolutely dependent on them: And this is the keynote of our full page in *LIFE, Sept. 20, 1943*

the GOVERNMENT and YOU!

support the Government campaign

every employer in the country

THIS IS A WAR JOB TOO!
—and she's in uniform. The smooth functioning of our hotels and restaurants is necessary to our civilian life.
If you could shorten the war by one hour, WOULD YOU DO IT?
Of course, you would! You—and two million women like you—can shorten the war by rolling up your sleeves and getting down to work...immediately. There's no place for part-time patriots today. Your country needs workers as desperately as she needs soldiers!
...and she's in uniform. The smooth functioning of our transportation systems is necessary to our civilian life.
GOOD HOUSEKEEPING
VOGUE

GOOD HOUSEKEEPING
October, 1943

VOGUE, Sept. 1, 1943

Write for reprints of these WOMANPOWER advertisements—post them in your plant—it will not only help to stabilize your own womanpower, but also forward the Government Campaign.

TUBIZE CHATILLON CORPORATION

2 PARK AVENUE

NEW YORK 17, N.Y.

How to get skilled help during an 85 percent labor turnover

Your *skilled* help must come from the reservoir of unskilled and untrained men and women coming into the textile industries to-day. There is no other source.

Many mill managers and personnel directors are calling on INTERNATIONAL CORRESPONDENCE SCHOOLS to cooperate in systematizing and speeding this training. Skilled supervisory employees are being developed, rapidly, from the unskilled newcomers.

This is a familiar problem to I.C.S. Many men high in the textile industries to-day were trained by I.C.S., cooperating with mill management.

Available to work with you, in setting up adequate training for employees, is the I.C.S. Cooperative Training Division. It is staffed by men of education and broad practical experience. They are prepared to make mill surveys and to collaborate with your Educational Department or General Management in setting up a course that will parallel your apprentice system, or other method of training now in effect.

50 YEARS of Educational Service I.C.S.

SIXTEEN Practical Textile Courses

This is an unusual group of courses, each planned to afford special training in a branch of the Textile Industries. It includes:

COURSES IN COTTON MANUFACTURE

1. Cotton Manufacturing.
2. Cotton Carding and Spinning.
3. Cotton Warp Preparation and plain Weaving.
4. Fancy Cotton Weaving.
5. Cotton Carding, Spinning and Plain Weaving.
6. Yarn Reeling, Winding and Warping.

COURSES IN WOOLEN MANUFACTURE

7. Woolen Manufacturing.
8. Woolen Carding and Spinning.
9. Woolen Warp Preparation and Weaving.
10. Worsted Warp Preparation and Weaving.
11. Wool Carding, Spinning and Weaving.

COURSES IN TEXTILE DESIGNING

12. Textile Designing.
13. Theory of Textile Designing.
14. Cotton Designing.
15. Woolen and Worsted Designing.

RAYON SLASHING AND SIZING

16. This course fills a decided gap, as books and information were lacking until it was prepared.

This Book Contains Vital Information for Textile Mill Managers

RESULTS

Let us send you evidence of the RESULTS of I.C.S. cooperation in employee training. Ask your secretary to write for the book —"TRAINING FOR THE TEXTILE INDUSTRIES".

International Correspondence Schools

Box 9337-B **SCRANTON, PA.**

THE FRANKLIN PROCESS

"SHUTTLE" SYSTEM

IT GIVES YOU 4 SOURCES OF YARN DYEING

Many large buyers want more than one source of supply, as insurance against unforseen contingencies. That is exactly what Franklin Process gives you with four widely separated dye houses.

It also gives you something more, which unaffiliated plants can not give, — the same uniform quality, no matter in which plant your work is done.

That's because our plants "shuttle" technical information back and forth, — also orders when delivery requirements demand it. Thus you get better service, as well as uniform quality.

It's GOOD INSURANCE to use Franklin Process colors.

FRANKLIN PROCESS — *Yarn Dyers and Colored Yarns* — Providence, Philadelphia, Greenville, Chattanooga. New York Representative, 40 Worth Street; Chicago Representative, 100 West Monroe Street.

Franklin Process

★ LARGEST PACKAGE DYERS IN THE WORLD

Chenilles and Cotton hosiery, two of the fields to which our Chattanooga plant, Central Franklin Process Company, caters.

WHY IS A CHAMPION?

• • • Champions are champions because they always have "more left for the straight-away" than their opponents.

Successful mill practice also requires that your supplier of card clothing products have "something in reserve", which means Ashworth with —

3 FACTORIES which assure an uninterrupted supply of card clothing. If one factory is temporarily disabled, another factory can "pinch hit" for it.

6 REPAIR SHOPS which facilitate convenient and prompt repairs and which again insure you against emergencies.

7 DISTRIBUTING POINTS, which speed up deliveries of those items we have in stock and facilitate personal contacts when you have card clothing problems.

★ ★ ★

Made by "pioneers in card clothing" Ashworth Products also have quality to spare and are backed by a service which is unique. Ask us about Ashworth Surveys.

ASHWORTH BROTHERS, INC.

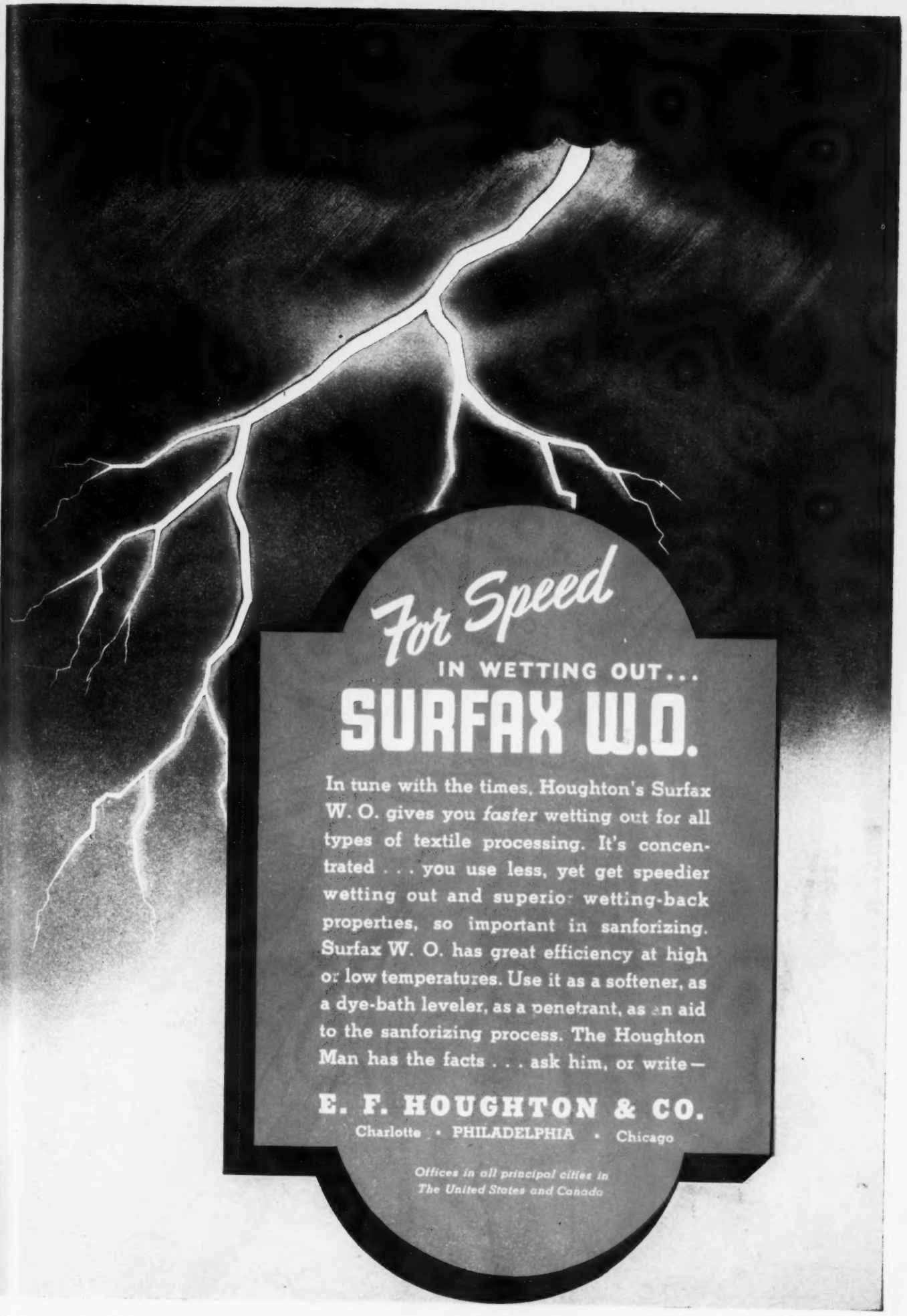
***Woolen Div.*, AMERICAN CARD CLOTHING CO.**

Fall River*†‡ Worcester*† Philadelphia*†‡
Charlotte†‡ Greenville†‡ Atlanta†‡ Dallas†‡
(Textile Supply Co.)

**Factory †Repair Shop ‡Distributing Point*

ASHWORTH
PIONEERS IN
CARD CLOTHING

PRODUCTS AND SERVICES: Card Clothing for Cotton, Wool, Worsted, Silk and Asbestos Cards and for all Types of Napping Machinery • Brusher Clothing and Card Clothing for Special Purposes • Lickerin Wire and Garnet Wire • Sole Distributors for Platt's Metallic Wire • Lickerins and Top Flats Reclothed.


For Speed
IN WETTING OUT...
SURFAX W.O.
In tune with the times, Houghton's Surfax W. O. gives you *faster* wetting out for all types of textile processing. It's concentrated . . . you use less, yet get speedier wetting out and superior wetting-back properties, so important in sanforizing. Surfax W. O. has great efficiency at high or low temperatures. Use it as a softener, as a dye-bath leveler, as a penetrant, as an aid to the sanforizing process. The Houghton Man has the facts . . . ask him, or write—
E. F. HOUGHTON & CO.
Charlotte • PHILADELPHIA • Chicago
Offices in all principal cities in The United States and Canada

A Symbol of Quality

in Rayons that Work or Play

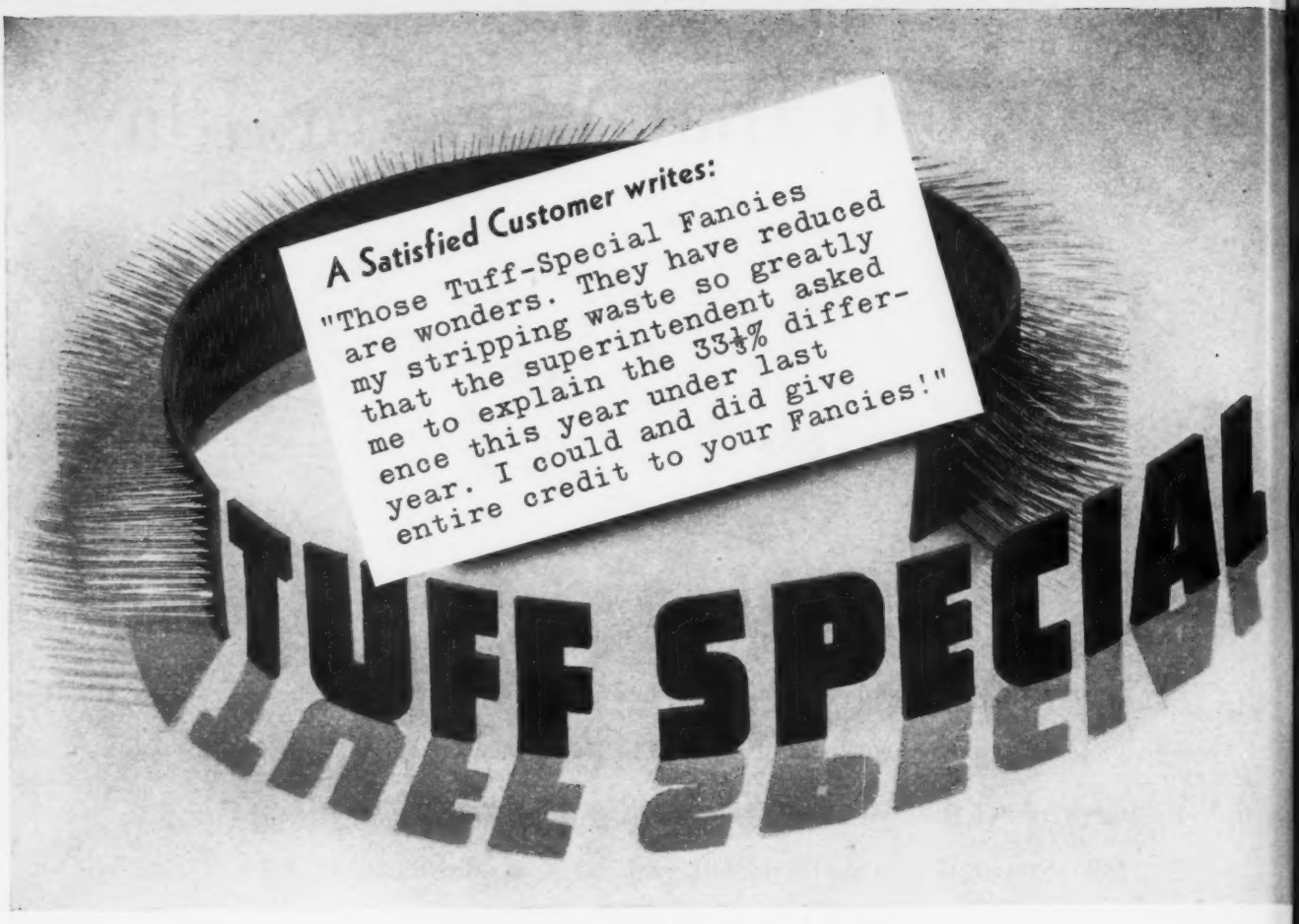
MADE OF
du pont rayon yarn

Fabrics labeled "Du Pont Rayon" speak to an audience of millions. To men and women everywhere this name means "the best that science can produce." ***When you weave goods of Du Pont Rayon yarns, why don't you make this name work for you? Add it to your fiber content data. Label your bolt ends. It is an effortless, cost-free way to build goodwill while you carry on your great job of clothing a nation at war...

Rayon Division, E. I. du Pont de Nemours & Co. (Inc.),
Empire State Building, New York City.

DUPONT RAYON

BETTER THINGS FOR BETTER LIVING
. . . THROUGH CHEMISTRY


A Satisfied Customer writes:
"Those Tuff-Special Fancies are wonders. They have reduced my stripping waste so greatly that the superintendent asked me to explain the 33⅓% difference this year under last year. I could and did give entire credit to your Fancies!"
TUFF SPECIAL

A NEW FOUNDATION - that is absolutely uniform to take the place of leather in Fancies and Hand Cards

WE have always pointed with pride to our Fancies, years having been spent in producing a particular type of leather to accomplish certain and necessary results. Yet in the finest of leather there is chance for variation in tensile strength, in "stretch," in pliability, and in uniformity; laps or joints could not be avoided. Neither could the effect of oil which caused it to over-stretch.

We are proud of the record of TUFF-SPECIAL, for all these faults are completely eliminated as a result of constant research work. This new product is wholly owned and controlled by Howard Bros. So we are able to offer you a perfect foundation for thickness, uniformity, absolutely oil- and water-proof, without hard and soft spots, and completely free from laps or joints — a combination that means perfection in a Fancy.

All the above is being demonstrated in hundreds of mills which are now sending repeat orders. *You, too, should have the same advantage!*

HOWARD BROS. MFG. CO.

WORCESTER, MASS.

Southern Plants: Atlanta, Ga., Gastonia, N.C. **Branch Offices:** Philadelphia, Dallas
Canadian Agents: Colwool Accessories, Ltd., Toronto 2, Canada

CARD CLOTHING is essential for DEFENSE
The wool of 10 sheep must be carded to outfit each soldier!

PRODUCTS: *Card Clothing for Woolen, Worsted, Cotton, Asbestos and Silk Cards • Napper Clothing, Brush Clothing, Strickles, Emery Fillets. Top Flats Recovered and extra sets loaned at all plants • Lickerins and Garnet Cylinders from 4 to 30 inches and Metallic Card Breasts Rewired at Southern Plant • Midgley Patented, and Howard's Special Hand Stripping Cards • Inserted-Eye and Regular Wire Heddles.*

ELECTROLYTIC

HYDROGEN

PEROXIDE

Keep in touch with

BECCO

HYDROGEN PEROXIDE TECHNICAL SERVICE

for accurate, reliable, and comprehensive information on Peroxide Bleaching of all fibres . . . by all Methods and Procedures including all systems of Continuous Bleaching.

BECCO SALES CORPORATION

BUFFALO, N. Y.

Branch Offices in Boston, New York City, Philadelphia, Chicago and Charlotte

"Is that you Sally?

How About Coming Over for Bridge Tonight?"...

...and so they radiophone as they walk along, and think nothing whatever of it!

Walkie-talkies for you and me? Who knows? Think—in your own lifetime, the miracles that have come to pass.

As rayon people, we have seen one unfold before our eyes—the miracle of the "Continuous Process", which does for Rayon what the cotton gin or the spinning jenny did for cotton. And we have seen the yarn produced by this process, set a new standard for rayon quality—a yarn absolutely uniform, virtually knot-free, filaments unbroken.

Of course, today, this "Continuous Process" yarn is doing war-work where highest quality rayon is so urgently needed. But let the swords be beaten once more into ploughshares and "Continuous Process" yarn will be back to serve in a thousand new ways, with new and superior rayon products.

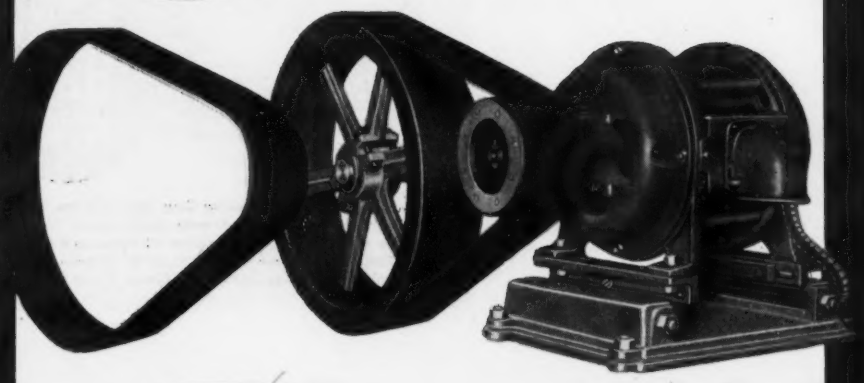
Industrial RAYON CORPORATION*

MAKERS OF "CONTINUOUS PROCESS" RAYON YARN AND "Spun-lo" KNIT UNDERWEAR CLOTH

*Reg. U. S. Pat. Off.

CLEVELAND, OHIO • *New York Office, 500 Fifth Avenue*

GRATON AND KNIGHT



The BELT WITH

TWO LIVES

TWO LIVES

On a pivoted base drive... Research Leather Belting will have at least double the life of a rubber V-belt

Any first-quality leather belt will outlive a rubber V-belt on a corresponding drive 2 to 1*. But with Research—the leather industry's top-quality belt—you can expect extra performance and a life-span *more than double.*

You'll get the most *pliability,* the greatest *frictional surface* (the two prime requirements of a belt for use on a pivoted base drive) in Graton & Knight's Research Leather Belting.

Research Belting's greater pliability means it withstands constant flexing over small pulleys on short centers. Its "built-in" pulley grip means less tension required to deliver full power without slip. Result: more production, longer belt life.

No wonder more pulleys are belted by Research than by any other brand!

Graton & Knight is the only leather belting manufacturer with complete nation-wide service facilities. Branches in Chicago, Cleveland, Dallas, Detroit, Kansas City, Minneapolis, New York, Philadelphia, St. Louis, San Francisco; distributors in all industrial centers.

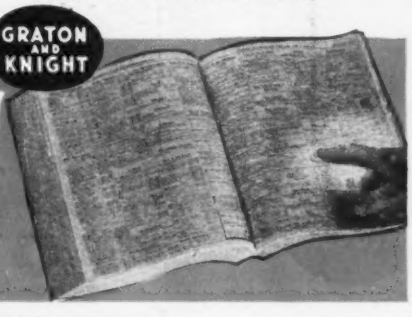
Authority: "Fifty Reports on Mechanical Power Transmission from Motor Drive to Industry" — Robert Drake.

GRATON AND KNIGHT

GRATON & KNIGHT COMPANY

WORCESTER 4, MASS.

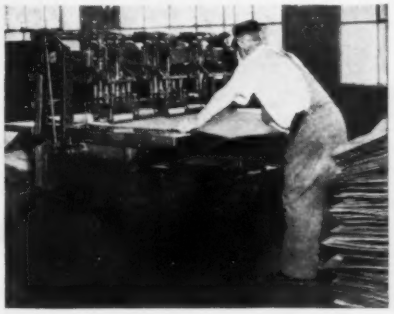
Look under "Graton & Knight" in Belting section of Classified Telephone Directory or THOMAS' REGISTER.



PERFECT *BALANCE* IN A LEATHER BELT

Modern mechanical methods replacing hand methods in the manufacture of leather belting are responsible for the increased machine production and longer belt life obtainable with Research Leather Belting.

Leather is naturally the ideal medium for power transmission — low cost, greater frictional pulley grip, greater overload capacity, ease of installation, longer life. By overcoming its one disadvantage — the natural variation in the thickness of the hide — Graton & Knight provides a leather belt with perfect balance.

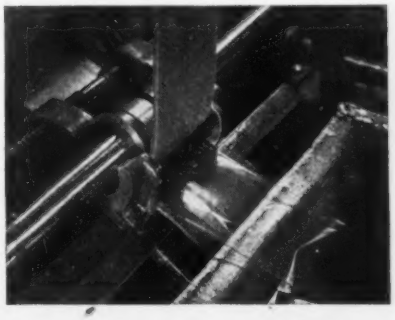


Graton & Knight does this, by depending upon mechanical means, rather than hand methods, to select uniform thicknesses. The Graton & Knight Belt Thickness Machine stamps the exact thickness to an accuracy of .008" in 185 places in the average-sized belting bend. Guesswork is completely eliminated; the leather is cut, scientifically, into strips of uniform thickness, insuring perfect *balance* in the running of the belt.

GREATEST BELTING ADVANCE IN 50 YEARS

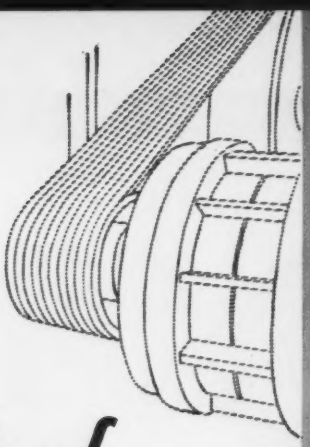
Again, in the cementing of laps and plies, a Graton & Knight patented development provides uniform cement coverage of every part of the cemented surfaces to be joined — more permanent adhesion.

Replacing hit-or-miss hand methods, the Graton & Knight Belt Cementing Machine applies the cement with perfect uniformity and does the pressing in one continuous operation — all while the belt is *under working tension.*



So Research Belting is cemented to stay, because the cement is uniformly distributed and the cement line is the same length as that of the belting. Furthermore, the cement is waterproof, extremely flexible and heat resistant.

Graton & Knight's *tension cementing* is the most important development of the last 50 years in manufacturing leather belting. It means that you can expect top performance and longer life with Research Leather Belting.

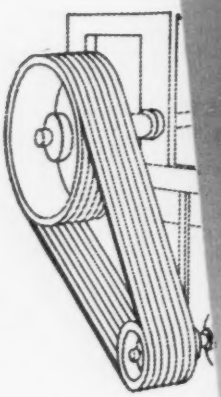


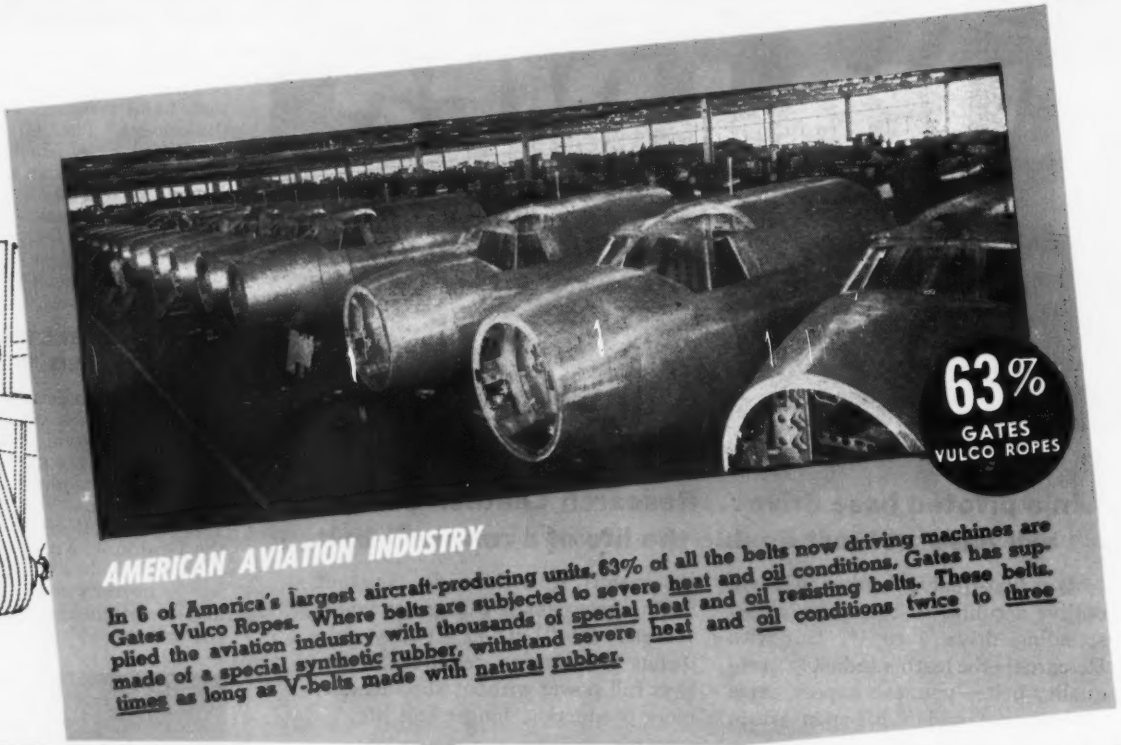
BOULDER DAM

Back in 1935 when Boulder Dam was still the biggest thing mankind had ever built, Gates Vulco Ropes were already first choice of America's leading Engineers. More than 92% of all V-belts used in building Boulder Dam were Gates Vulco Ropes.

Thousands of

GATES VULCO ROPES---





AMERICAN AVIATION INDUSTRY

In 6 of America's largest aircraft-producing units, 63% of all the belts now driving machines are Gates Vulco Ropes. Where belts are subjected to severe heat and oil conditions, Gates has supplied the aviation industry with thousands of special heat and oil resisting belts. These belts, made of a special synthetic rubber, withstand severe heat and oil conditions twice to three times as long as V-belts made with natural rubber.

PENNSYLVANIA TURNPIKE

Built by 155 contractors from 18 different States—yet more than 87% of all the V-belts used were Gates Vulco Ropes.

GREAT CENTRAL VALLEY—California

In many ways the greatest project of all—and, here again, 94% of the V-belts selected were Gates Vulco Ropes.

GRAND COULEE

Gates began supplying industry with V-belts made entirely of synthetic rubber in 1938—just when the first big units of Grand Coulee were nearing completion. On this mammoth engineering project, Gates Vulco Ropes totaled more than 76% of all the V-belts used.

COLORADO RIVER AQUEDUCT

American Engineers once more gave Gates Vulco Ropes predominantly first place. To build 91 miles of tunnels, 60 miles of canals, 56 miles of conduit, 3 immense aggregate plants and a diversion dam 320 feet high, 85% of the V-belts chosen for the work were Gates Vulco Ropes.

---in America's Greatest Industrial Projects—
Have Been Made Entirely of
Synthetic Rubber

It is no accident that GATES — the World's Largest Maker of V-belts—began supplying industry with thousands of V-belts made entirely of synthetic rubber *5 years before* anyone could know that supplies of natural rubber would be cut off by war.

The Gates synthetic rubber V-belt—now thoroughly tested by *years*, not *months*, of service—was in no sense developed as merely a "substitute" for rubber. It was designed to be—and in certain important applications it has *proved* itself to be—greatly *superior* to belts of natural rubber.

There is this to be kept always in mind concerning rubber:—A tree can make only one kind. In synthetic rubbers we have the choice of *many* kinds. Gates uses each kind where it best meets some particular service need.

In the Gates Special Heat and Oil Belt, for instance, a *very special kind* of synthetic rubber is used. This special synthetic rubber has the ability to withstand heat and oil much better than natural rubber can.

You know, of course, from every day experience, that your Standard Gates Vulco Ropes withstand exposure to heat and oil very well. It is when the heat or oil conditions become *excessively* severe that the Gates *special* synthetic V-belt, at a little higher price, has proved its ability to give *very much longer* wear than any other V-belt you can use.

Beyond any question, Gates has had *longer* experience and *more successful* experience in the fabrication of synthetic rubber V-belts than *any other* manufacturer.

To know of this will be to your advantage —particularly NOW when Gates' unequaled experience in making synthetic rubber V-belts can be put to use right in your own plant. You have only to look in your telephone directory and call the Gates Field Engineer. He will put at your service the full benefits of Gates' knowledge and experience *without the slightest obligation.*

THE GATES RUBBER COMPANY

439

Engineering Offices and Stocks in All Large Industrial Centers

GATES VULCO ROPE DRIVES

CHICAGO, ILL. 549 West Washington
DALLAS, TEXAS 2213 Griffin Street
NEW YORK CITY 215-219 Fourth Avenue
BIRMINGHAM, ALA. 801-2 Liberty National Life Building
DENVER, COLO. 999 South Broadway
CHARLOTTE, N. CAROLINA 507 Builders' Building
GREENVILLE, S. CAROLINA 104 West Washington Street
ATLANTA, GA. 738 C. & S. National Bank Building

Star Ascending!

★ARALAC

. . . the magic protein fibre

New weaves . . . new finishes . . . new fabrics! That's what ARALAC has meant to the textile industry in the short term of its existence.

ARALAC blended with rayon gives a new softness to the touch . . . adds the warmth and resiliency of wool. It has opened new fields in the development of fabrics . . . fields so tremendous that their scope is yet to be determined!

Outstanding mills . . . ever alert . . . see a brilliant future for this newest fibre. They recognize the importance of ARALAC in *its own right*. That's why they keep ARALAC numbers running in today's civilian production line . . . developing new weaves and finishes . . . ready to hit the peacetime stride toward bigger and better profits.

★T. M. Reg. U. S. Pat. Off.

ARALAC, INC.

230 Park Avenue, New York City

ARALAC, produced by a division of NATIONAL DAIRY PRODUCTS CORPORATION, represents but one of the many contributions this nation-wide organization is making toward the more efficient utilization of America's agricultural resources.

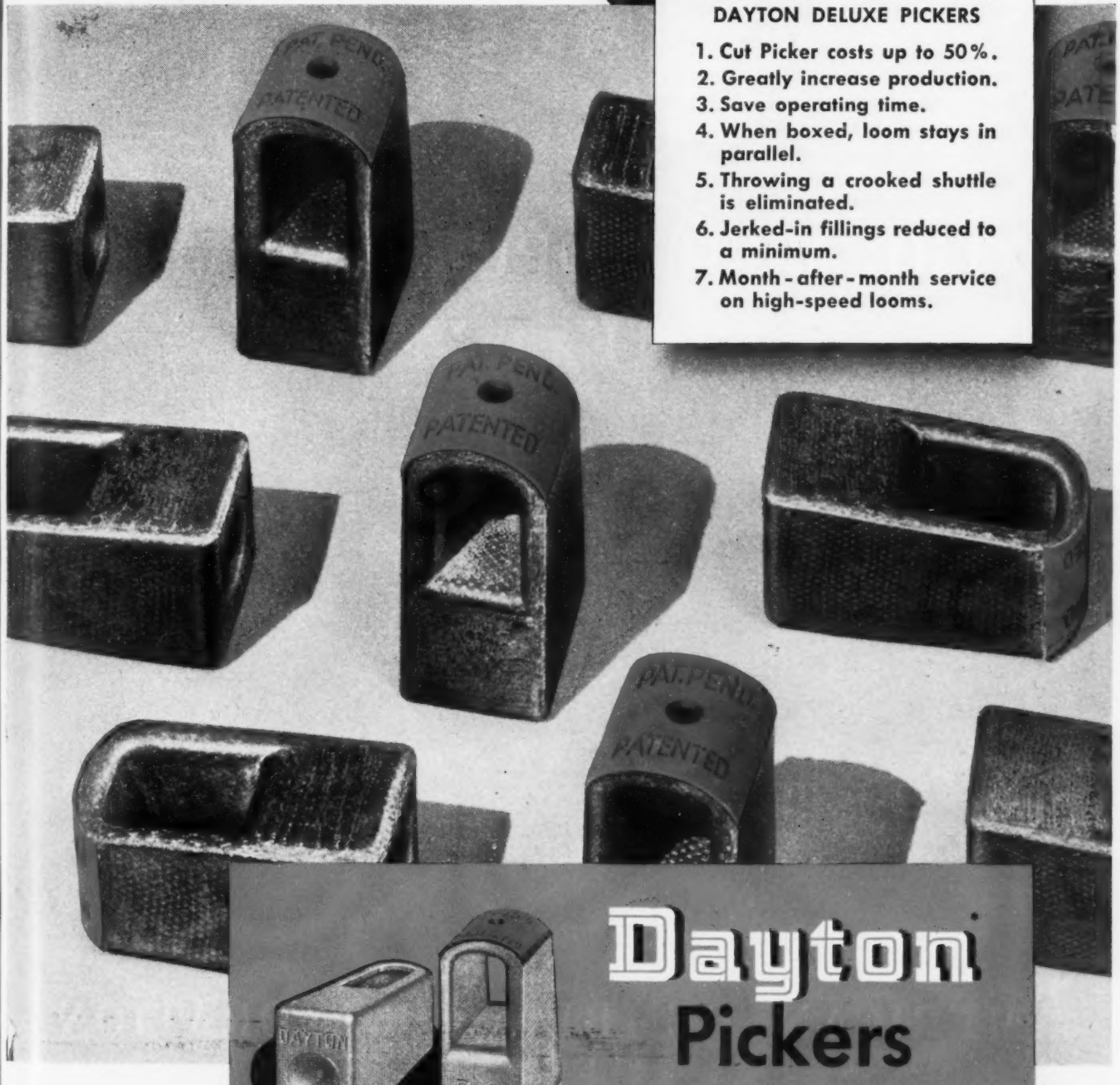
Loom-Proved to be—

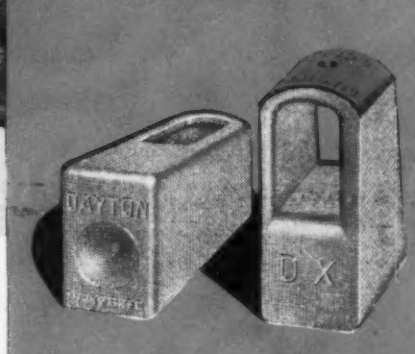
Loom-proved in America's large and small mills to be stronger, smoother and tougher, Dayton DeLuxe Pickers are the time-tried product of 37 years of continuous, forward-looking "know-how by Dayton" in industrial rubber developments.

THE DAYTON RUBBER MANUFACTURING CO.
DAYTON, OHIO • WAYNESVILLE, N. C.
Famous Dayco Synthetic Rubber Products since 1934
MAIN SALES OFFICE.....Woodside Building, Greenville, S. C.

SEVEN GOOD REASONS FOR DAYTON DELUXE PICKERS

1. Cut Picker costs up to 50%.
2. Greatly increase production.
3. Save operating time.
4. When boxed, loom stays in parallel.
5. Throwing a crooked shuttle is eliminated.
6. Jerked-in fillings reduced to a minimum.
7. Month-after-month service on high-speed looms.

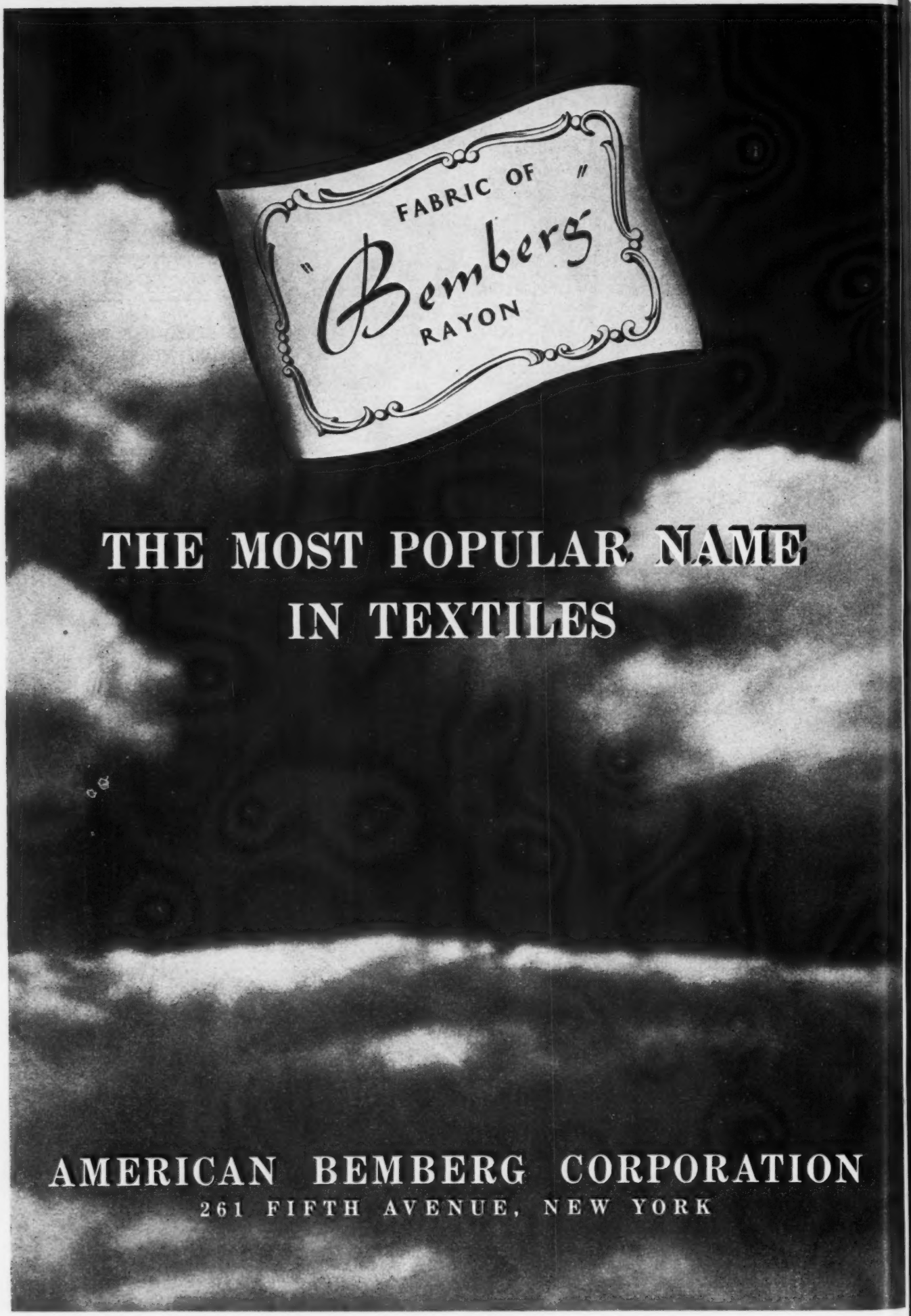


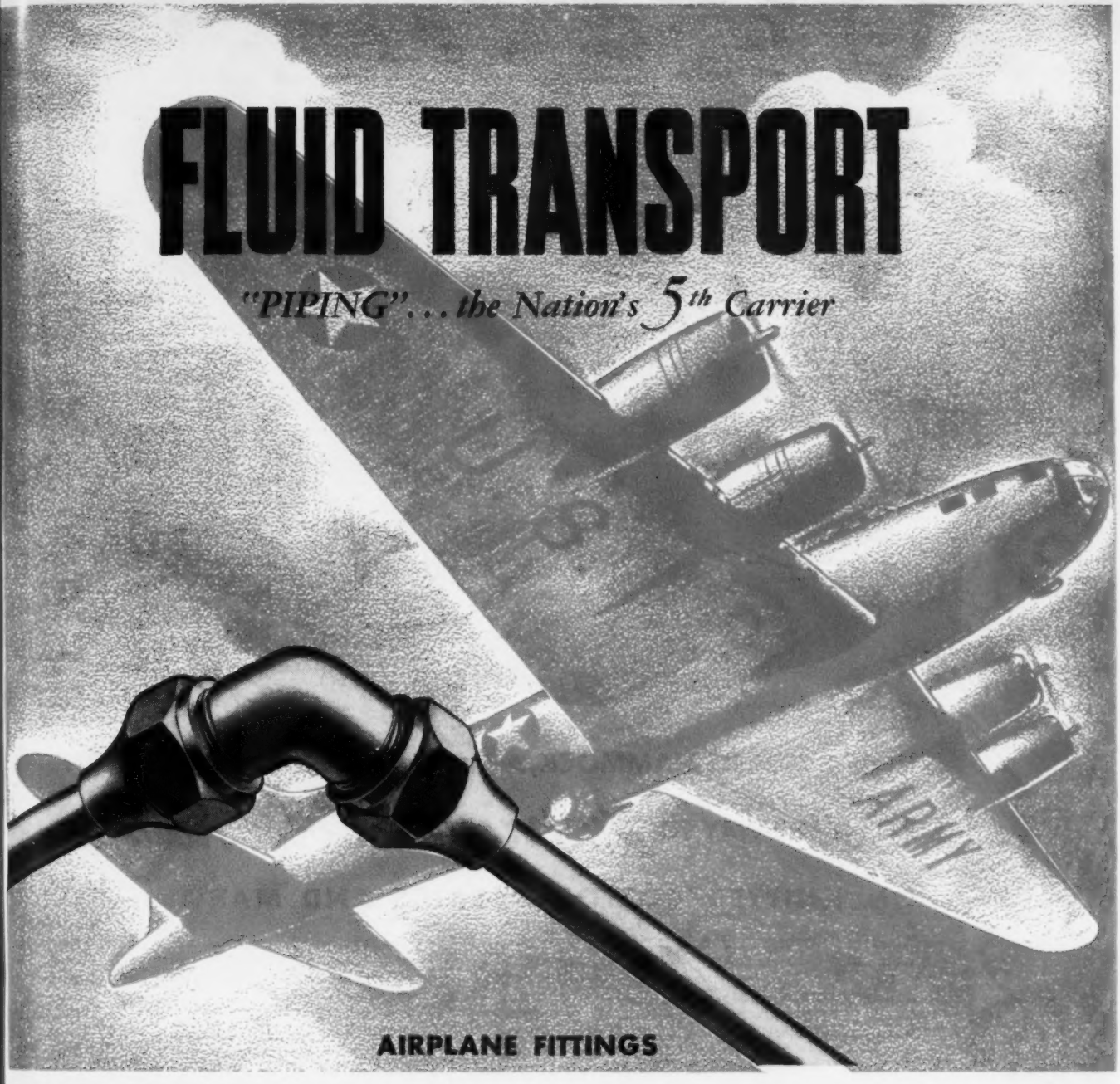


Dayton Pickers

A THOROBRED® PRODUCT BY
Dayton Rubber
TECHNICAL EXCELLENCE IN SYNTHETIC AND NATURAL RUBBERS

**Back the Attack—
Buy More War Bonds**


FABRIC OF
"Bemberg"
RAYON
THE MOST POPULAR NAME
IN TEXTILES
AMERICAN BEMBERG CORPORATION
261 FIFTH AVENUE, NEW YORK



BOUND FOR BERLIN! And the success of the mission will depend upon the smooth operation of the plane—upon uninterrupted delivery of gas, oil, air, hydraulic fluids, even oxygen, through labyrinths of tubing—in essence upon FLUID TRANSPORT.

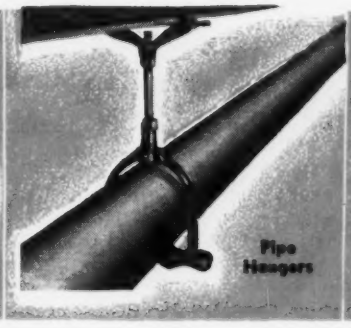
From the most delicate of airplane systems, to rugged 16" high pressure-high temperature steam lines of power plants, Grinnell supplies the component parts plus expert engineering to convert a pile of pipe into a piping *system.*

For new war construction, or maintenance and repair of existing piping, call Grinnell Company, Inc., Executive Offices, Providence, Rhode Island. Plants and offices throughout U. S. and Canada.

GRINNELL

WHENEVER **PIPING** IS INVOLVED

Prefabricated Piping


Pipe Hangers

Pipe and Tube Fittings

Grinnell Saunders Diaphragm Valves

Pioneering
WITH Pigments
-one of a series of developments illustrating the advantages of Aridye* pigmented colors in new and significant applications

HOW A JUNGLE HAMMOCK, A MOSQUITO BAR AND A HEADNET POINT THE WAY TO *Improved Color Fastness* ON KNITTED COTTON FABRICS AND MARQUISETTES

About a year before Pearl Harbor, this problem was put up to Aridye: "Can we dye mosquito netting for jungle hammocks, mosquito bars and headnets with fast-to-light olive drab color, control shrinkage, give a permanent finish and weather resistance all in one continuous operation?" A challenging problem involving not only lightfast colors and proper selection of binder, but also new application and curing techniques!

Here's how the problem was solved by the Development Laboratories of Aridye Corporation—

Since extreme light fastness was essential, pigments were chosen that could stand 300 hours in the fadeometer. Because of the need for shrinkage control, the binder selected was Ceglin†, a cellulose finish. Careful dispersion of the pigments in this medium and proper application on a good padder assured even, uniform dyeing of the fabric. Curing was then effected by a continuous process of coagulating the Ceglin in a souring bath, neutralization and drying of the fabric. Over 50 million yards have now been dyed and finished with this continuous method!

The resultant light fastness, improved finish and shrinkage controls are now available for the pigment-dyeing and finishing of many kinds of civilian fabrics. This new development means that curtains and knit goods can be dyed faster to light than heretofore, shrinkage can be controlled and the goods finished *all in one operation!*

Successful and satisfactory results depend, of course, upon three factors: (1) technically correct pigmented colors (2) must be properly applied and (3) adequately cured.

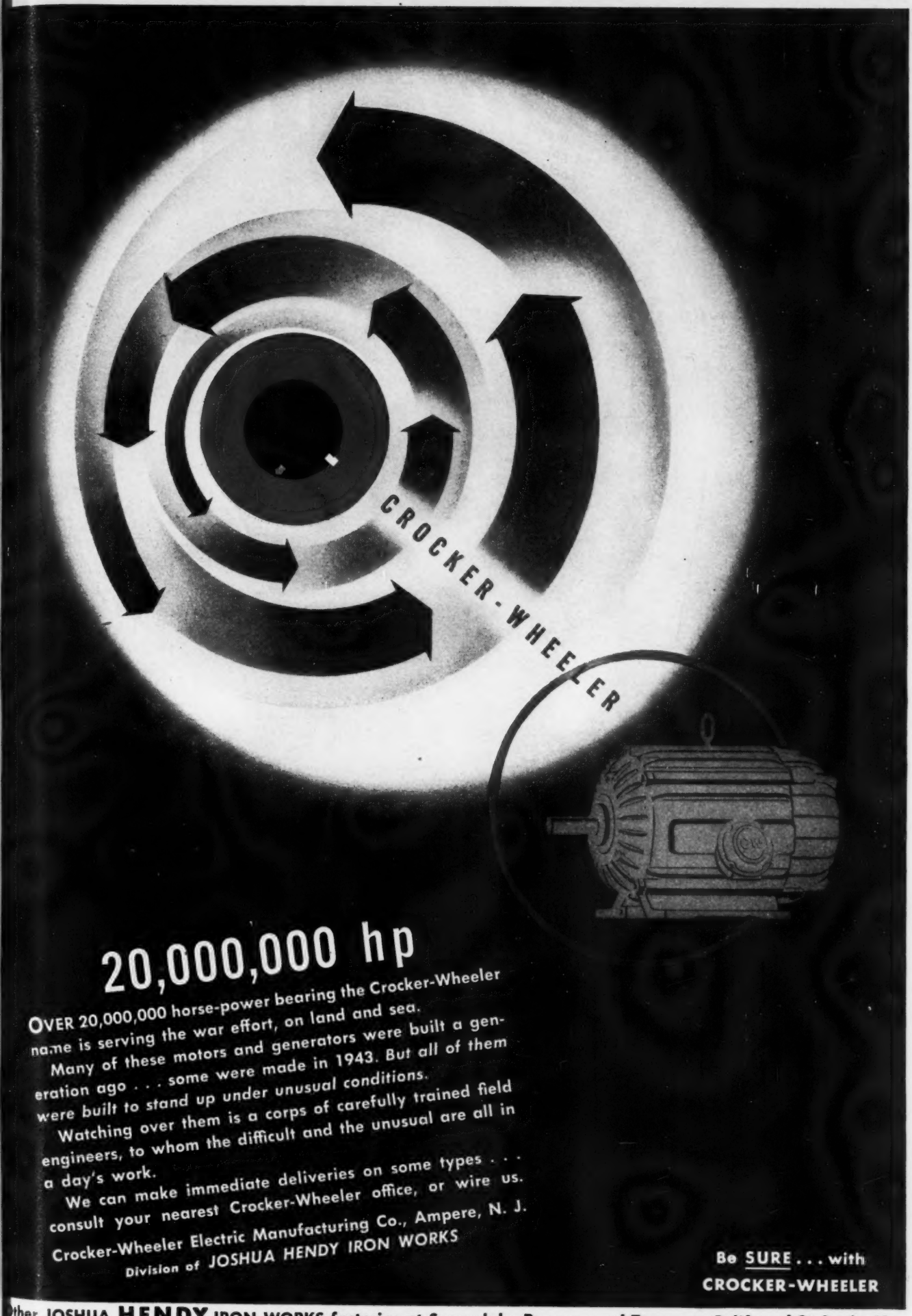
An illustrated, more detailed folder has been prepared on the subject of pigment-dyeing of knitted cotton fabrics and marquisettes, and will be sent without obligation to all finishing plants requesting it. Send for your copy today!

Aridye Corporation has been appointed as a sales agent for Ceglin, a product of Sylvania Industrial Corporation.

*Reg. U. S. Pat. Off.
†Reg. U. S. Pat. Off. Sylvania Industrial Corp.

Aridye TEXTILE COLORING MATERIALS

ARIDYE CORPORATION • A SUBSIDIARY OF INTERCHEMICAL CORPORATION
FAIR LAWN, NEW JERSEY • PROVIDENCE, RHODE ISLAND • ROCK HILL, SOUTH CAROLINA



20,000,000 hp

OVER 20,000,000 horse-power bearing the Crocker-Wheeler name is serving the war effort, on land and sea.

Many of these motors and generators were built a generation ago . . . some were made in 1943. But all of them were built to stand up under unusual conditions.

Watching over them is a corps of carefully trained field engineers, to whom the difficult and the unusual are all in a day's work.

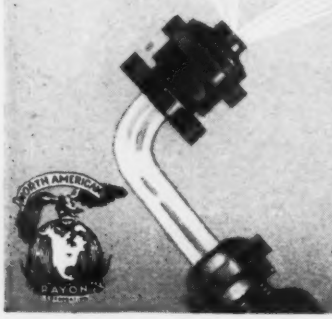
We can make immediate deliveries on some types . . . consult your nearest Crocker-Wheeler office, or wire us.

Crocker-Wheeler Electric Manufacturing Co., Ampere, N. J.
Division of JOSHUA HENDY IRON WORKS

Be SURE . . . with
CROCKER-WHEELER

Other JOSHUA **HENDY** IRON WORKS factories at Sunnydale, Pomona and Torrance, Calif. and St. Louis, Mo.

A flying fortress thumps to the ground...a mobile gun bounces and jolts over ruts and rocks...an armored truck slogs through mud, sand, snow. And still the equipment keeps moving...moving to victory on rubber tires! The heart of the heavy-duty pneumatic tire is the rugged, resilient tire cord...much of it made from SUPER-NARCO rayon yarn. Rayon for these tough tire cords is pushed through the holes of a spinneret in much the same way as the fiber for fine rayon fabrics of fashion...truly spinneret magic!



North American Rayon Corporation

261 FIFTH AVENUE • NEW YORK, N. Y.

When
PEACE COMES

This world-wide war is proving itself a unique laboratory for phenomenal research and brilliant exploitation of materials...When peace comes the fabric of industry will be rewoven into more significant patterns... Scientific advances on all fronts will yield priceless benefits in post-war operations...Our vast resources and huge manufacturing facilities are factors that will usher in an era of prosperity.

GENERAL DYESTUFF CORPORATION

QUALITY DYESTUFFS

L. F. Dommerich & Company

Executive and General Offices

271 MADISON AVENUE
NEW YORK, N. Y.

Telephone: AShland 4-8650

FACTORS

For Manufacturers and Merchants

Inquiries as to our services solicited

●

ESTABLISHED 1840

X-rays and other physical tests have shown that this Mazlo Magnesium casting is sound; proved that molding and casting practices are right for this piece. Now our layout man checks it. When he adds his "O.K." you know the dimensions are accurate, that cores are correctly placed, and that it will machine exactly as your designers planned it.

More than twenty years' experience in working with magnesium contributed to the fine quality of this casting. Where to place gates, chills and risers to assure a sound product, how to pour the metal, what heat treatment to bring out the best properties of this alloy; these are things that doing, learning and improving have taught American Magnesium foundrymen.

Daily, tons of Mazlo Magnesium castings are being shipped to manufacturers of fighting equipment by American Magnesium foundries. Their lightness, high strength and dependability are helping produce safer, faster airplanes for our flyers.

The same properties that make magnesium castings, forgings, extruded shapes and sheet indispensable today will also make them extremely valuable in your postwar products. Information is available which will help your engineers plan to use the lighter weight of magnesium to the best advantage. Sales Agent: Aluminum Company of America, 1705 Gulf Building, Pittsburgh, Pennsylvania.

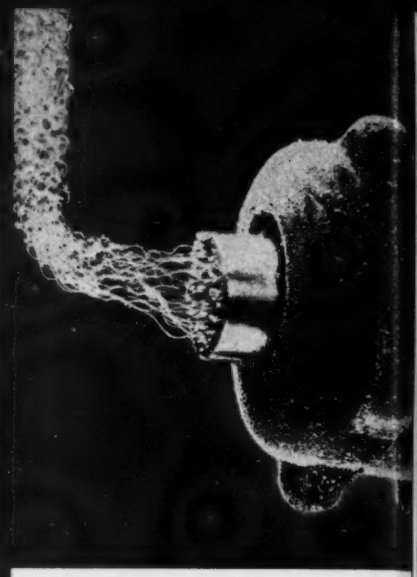
MAGNESIUM MAZLO PRODUCTS

REG. U.S. PAT. OFF.

AMERICAN MAGNESIUM CORPORATION

SUBSIDIARY OF ALUMINUM COMPANY OF AMERICA

Check List of HOOKER CHEMICALS for RAYON



PRODUCT *Chemical Formula Molecular Weight*	DESCRIPTION	USES	SHIPPING CONTAINERS
Aluminum Chloride, Anhydrous $Al\ Cl_3$=133.3	Grayish White Solid	Catalyst for Friedel-Crafts syntheses to produce dyes	55 gal. drums containing 500 lbs. 5 gal. pails containing 50 lbs.
Bleaching Powder $CaO \cdot 2\,CaOCl_2 \cdot 3H_2O$=364.1	White Powder with chlorine odor	Bleaching Manufacturing of dye intermediates Water purification Germicide and general disinfectant	Drums containing 100, 300 and 800 lbs.
Caustic Soda NaOH=40.0	White deliquescent solid	Manufacture of viscose rayon, dyes Bleaching, dyeing and printing	Drums containing 100, 220, 400, 700 lbs. and tank cars
Chlorinated Paraffin (Formula depends on chlorine content)	Colorless to amber colored viscous liquid	Ingredient of compositions for flame, water and mildew proofing textiles	55 gal. drums containing 525 lbs. and tank cars
Lauryl Pyridinium Chloride $C_5H_5NC_{12}H_{25}Cl$ =283.4	White crystalline solid	To keep spinnerettes clean	Barrels containing 375 lbs.
Sodium Sulfide Na_2S=78.1	Light yellow colored solid	Desulfurizing rayon	Drums containing 90 and 350 lbs.

This check list summarizes for you at a glance several of chemistry's contributions to today's rayon progress. More detailed information on any of the HOOKER chemicals tabulated above will be sent on request.

Other chemicals for other textile uses

Include the following HOOKER products: Chlor Anisidine, Chlorine, Ferric Chloride Solution, Muriatic Acid, Sodium Sulfhydrate, Sulfur Monochloride and Sulfuryl Chloride.

Write for list "T9" of principal HOOKER chemicals.

HOOKER ELECTROCHEMICAL COMPANY
NIAGARA FALLS, NEW YORK
New York, N. Y. Tacoma, Wash. Wilmington, Calif.

EQUIPPING THE WAC

—is part of rayon's job—In insignia and in hosiery, for example, rayon serves the uniformed nieces of Uncle Sam.

BRINGING HIM TO SAFETY

—is part of rayon's job. Rayon is widely used in 'chutes for paratroopers, and truck tires for land forces.

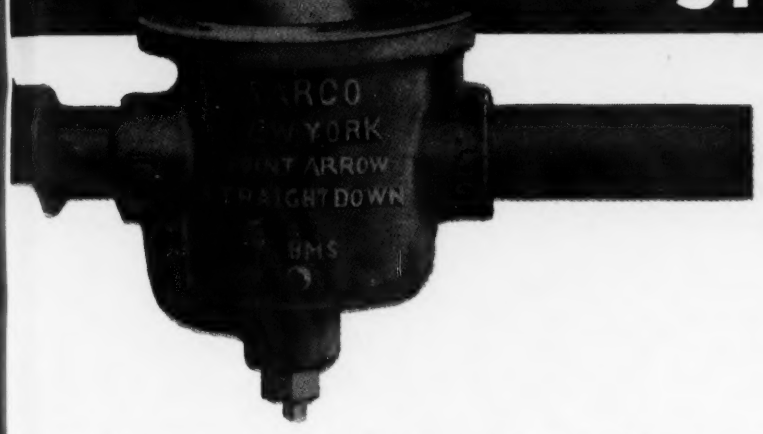
BACKING THEM WITH BONDS

—is part of everybody's job. Your dollars invested in U. S. War Bonds are *fighting dollars*. Join the "regulars" every pay day.

HOOKER CHEMICALS

42339

CHECK STEAM SYSTEMS NOW



Begin at least a month early this year because deliveries of replacement parts are slow, and a good overhaul now will prevent failures later. Loads are always heavier in winter, and if your plant was not warm enough last season, the increased demands next winter will surely call for adjustments.

Sarco Service includes vacuum, vapor, hot water, and radiant heating, as well as hot water service systems and all forms of steam process trapping and control. How far reaching and valuable this service can be in these times is represented by the following examples:

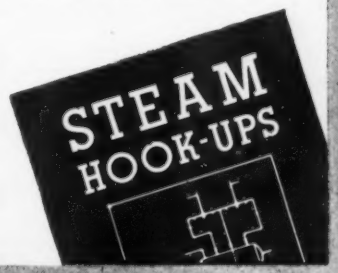
Slow heating up of vulcanizers in a tire retreading plant was due to incorrect steam traps. Sarco traps made everything O.K.and increased the output of the plant too.

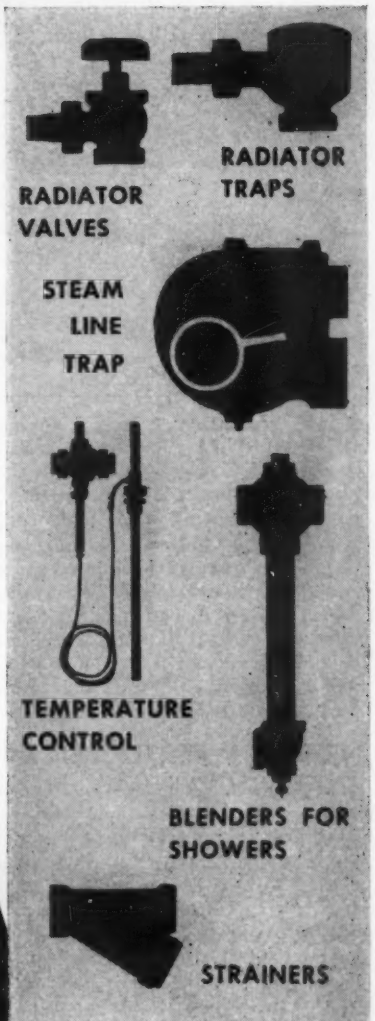
Hot water scarcity in a laundry was overcome by inserting an additional coil with a Sarco TR-2430 regulator in the heater tank.

Showers at a coal mine were too hot or too cold. A Sarco hot water blender now holds the temperature constant and saves half the fuel formerly used.

A large theater recently changed over to Sarco radiator and float traps. Savings reported: 21% of the metered steam.

The Sarco Hook-Up Book gives tables, diagrams, and recommendations which will help you improve your heating system now.





SARCO COMPANY, INC.
475 FIFTH AVENUE
NEW YORK 17, N. Y.

SARCO Saves Steam 17

REPRESENTED IN PRINCIPAL CITIES SARCO CANADA, LTD., 85 Richmond Street, West, TORONTO, ONTARIO

RAYON REPORTS

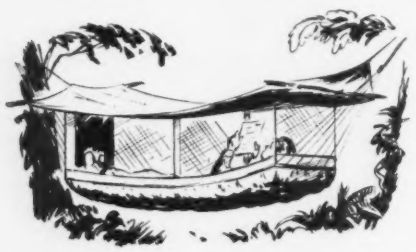
Presented Monthly by American Viscose Corporation, New York, N. Y. SEPTEMBER, 194

V FOR VINYON

The entire output of elastic "Vinyon,"** manufactured by the American Viscose Corporation, is currently going into military equipment and into articles connected with war activities.

The new elastic yarn, which is replacing rubber in many ways, is being used in the waistbands of the underwear and exercise uniforms issued to the WACs and Women's Marine Corps and in metatarsal pads used by industrial workers to support the balls of their feet.

Also, as reported here recently, considerable quantities are being used by the Army for the canopy suspension cords of jungle hammocks. Vinyon's ability to withstand heat and its elasticity under tension make it suitable for these war applications.



The development of many new uses for Vinyon is characteristic of the way in which American Viscose Corporation is contributing to progress in textiles.

SPIKING A RUMOR

American Viscose's acquisition of the Collins Looms Works, of Amsterdam, N. Y., has lead to a rumor that this corporation intends to become a tricot cloth manufacturer. This rumor was branded as false, in an official statement by the corporation which explains that the plant was acquired solely for the purpose of research and development of the tricot manufacturing technique and to make such improved technique available to the trade.

NEW CONVERTERS LICENSED

The American Viscose Corporation announces the appointment of twenty-seven companies as converter licensees under the "Crown" Tested Plan. The companies are B.V.D. Corp., Beaunit Mills, Inc., Benrose Fabrics Corp., Bergen Fabrics Corp., Blossom Fabrics Corp., Brand & Oppenheimer, Inc., Carnac Cottons, Inc., Charmette Fabrics Co., Inc., Cohn-Hall-Marx Co. (Two Divisions), Crown Fabrics Corp., Hego Fabrics, Inc., Herrmann & Jacobs, Inc., Herrmann Handkerchiefs Co., Inc., J. H. Kimball, Inc., William T. Knott Co., Inc., Marvlo Fabrics, Inc., Iselin-Jefferson Co., Robert J. C. Moore, Pepperell Mfg. Co., Queen Valley Fabrics, Inc., Robertson Factories, Inc., Robinson & Golluber, St. George Textile Corp., L. & E. Stirn (Concordia Gallia), Textile Converting Co., Traub Lyons Oppenheim, Inc., and Albert H. Vandam Co., Inc.

THE STRATOSPHERE GLOVE

So-called "precision gloves" which enable our flyers to handle instruments and maps without freezing their fingers when flying at high altitudes or in sub-zero weather are made of rayon, a relatively new use for this fiber. These gloves were originated to protect aviators' hands against "cold burn" and freezing which developed previously when it was necessary to remove the heavy lined gloves ordinarily worn in order to make delicate adjustments or handle instruments requiring full use of the fingers.

The protective value of the rayon gloves was dramatically demonstrated recently when a parachute jump was made fro 40,200 feet—the highest on record in th country. As the parachutist left the plan the jerk caused by his parachute openin threw off both of his heavy gloves and th rayon glove on his left hand. As a re sult, his left hand was frostbitten when h reached the ground. His right hand, how ever, protected by the rayon glove, wa unaffected by the freezing temperature.

OPERATION SUCCESSFUL!

A serious hazard in the administration of blood transfusions has been the accumulation of fibrin and gelatinous material in the stored plasma. These small clumps, barely visible to the eye, can clog blood vessels and cause pneumonia.

To offset this danger, the laboratories of American Viscose have engineered a special rayon cloth that does not clog or shred.

The rayon filter bag is a money-saver, too—costing only 20¢ as compared to the $3.00 price of the cheapest stainless steel filter.

This is another example of A.V.C. research, which is constantly engineering new fibers for the advancement of health, comfort and economy.

**T. M.—C. & C. C. C.

Copr. 1943—American Viscose Corp.

MAKE USE OF 4-PLY SERVICE!

1 PRODUCT RESEARCH Helps you to get the right yarns.

2 FABRIC DEVELOPMENT Helps you design new fabrics.

3 TEXTILE RESEARCH Helps solve production and finishing problems.

4 "CROWN" TESTED Helps provide scientific selling facts.

AMERICAN VISCOSE CORPORATION

Producer of CROWN* *Rayon Yarns and Staple Fibers*

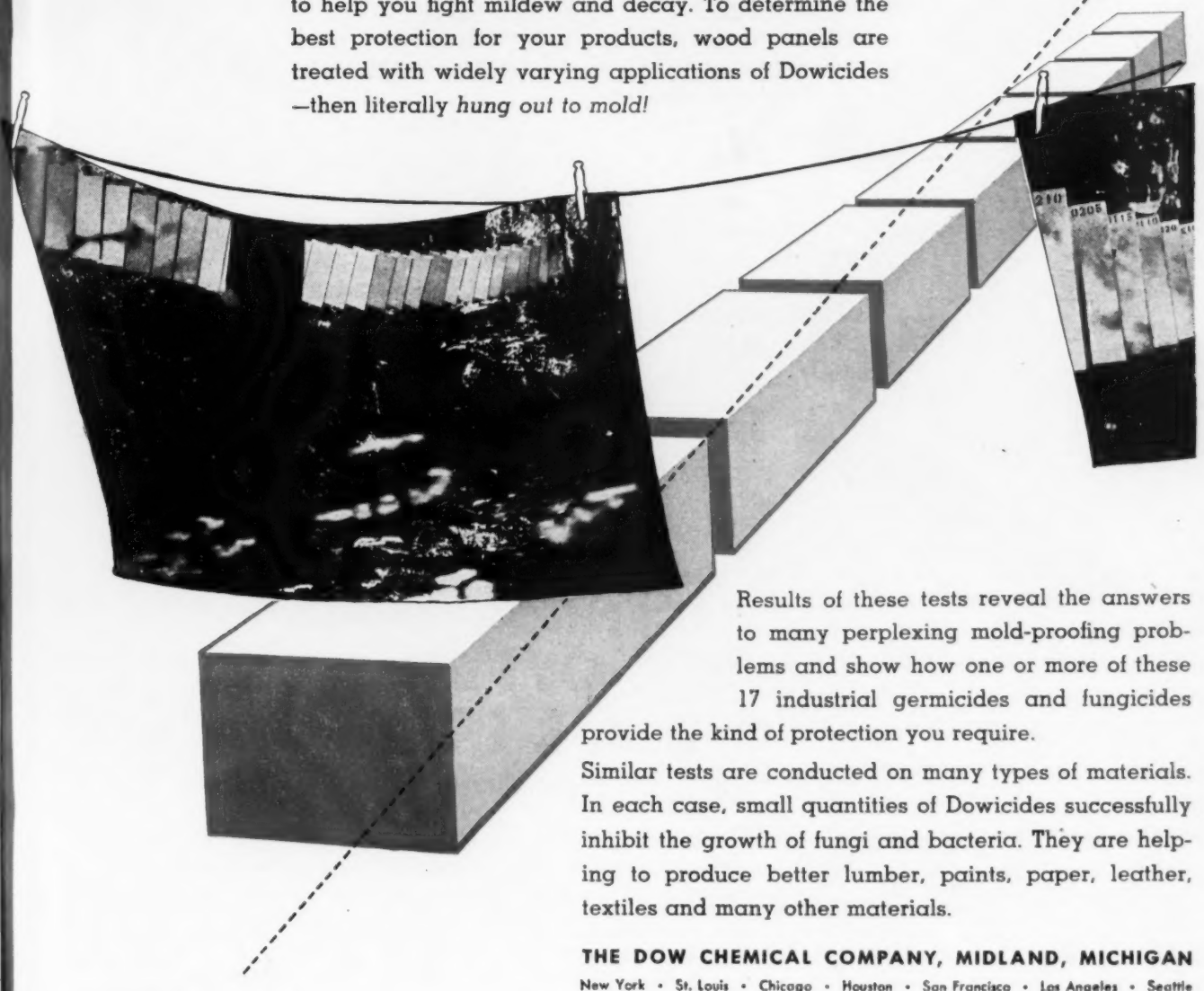
Sales Offices: 350 Fifth Ave., New York City 1; Providence, R. I.; Charlotte, N. C.; Philadelphia, Pa.

Plants: Marcus Hook, Pa.; Roanoke, Va.; Lewistown, Pa.; Nitro, W. Va.; Parkersburg, W. Va.; Meadville, Pa.; Front Royal, Va.

*T. M. Reg. U. S. Pat. Off.

Hung Out to Mold—
a Test for Your Products' Protection

In a series of unusual outdoor tests, Dow is working to help you fight mildew and decay. To determine the best protection for your products, wood panels are treated with widely varying applications of Dowicides —then literally *hung out to mold!*



Results of these tests reveal the answers to many perplexing mold-proofing problems and show how one or more of these 17 industrial germicides and fungicides provide the kind of protection you require.

Similar tests are conducted on many types of materials. In each case, small quantities of Dowicides successfully inhibit the growth of fungi and bacteria. They are helping to produce better lumber, paints, paper, leather, textiles and many other materials.

THE DOW CHEMICAL COMPANY, MIDLAND, MICHIGAN

New York • St. Louis • Chicago • Houston • San Francisco • Los Angeles • Seattle

PROTECTION FOR TEXTILES—Dowicides protect textiles against mildew and fungus growths. Incorporated in compositions for finishing, it provides an effective inhibiting action under widely varying atmospheric conditions—from arctic to tropical. This means longer life for all textiles. Write for full details.

DOWICIDE

GERMICIDES AND FUNGICIDES

DOW

CHEMICALS INDISPENSABLE TO INDUSTRY AND VICTORY

PINS and LAGS

BY CRABB

COTTON PICKER LAG — FLAT PINS
RAG OR SHODDY PICKER LAG
WASTE MACHINE MAIN CYLINDER
STEEL-FACED RAG OR SHODDY PICKER LAG
CARDING BEATER LAG

WE OFFER QUALITY

Our experienced staff is bending every effort to produce Pins and Lags of unsurpassed Quality.

● ***SERVICE*** We are carrying in stock a large number of items, and increasing this stock, as necessary, to make immediate shipments. You will find it worthwhile to get our quotations and to profit by the results of our reorganization, and our ample supplies of steel and wood.

JUTE and FLAX CARDS PINS
COTTON WASTE PICKER PINS
RAG or SHODDY PICKER TEETH
MIXING PICKER TEETH and PINS
WASTE MACHINE PINS
DOFFER TEETH
CORDAGE PINS
TENTER PINS
FALLER BAR PINS
JENNY BAR PINS
GILL PINS
HACKLE PINS
COMB PINS

FALLER BARS—PLAIN or PINNED
HACKLES FOR MACHINE or HAND
GILLS PINNED
TENTER PLATES PINNED
WET and DRY COMBS
FOR THE BRUSH TRADE
LAGS—GILLS—TENTER PLATES
ROLLS—FALLER BARS
IRON RIVETS
PLAIN or STEEL CLAD LAGS FOR USE IN—
JUTE and FLAX CARDS
COTTON WASTE PICKERS

CARDING BEATERS
RAG or SHODDY PICKERS
WORKER ROLLERS—WOOD or STEEL
STRIPPER ROLLERS—WOOD or STEEL
LUMPERS
WIPING WASTE MACHINES
PINNED FEEDER SLATS
PLAIN SLATS
DOFFER PLATES
WASTE MACHINE—
DOFFER CYLINDERS—STEEL
PINNED FEED ROLLERS
FEED ROLL LUGS

WILLIAM CRABB & CO. **301-3rd Ave., Newark, N. J.**

ESTERN UNION
ALLS FOR KODA*

Koda Shirting Blouses . . . three to each messenger . . . are part of the new uniform equipment now being issued by the Western Union Telegraph Company to approximately twenty-five hundred employees.

Like the army of wide-awake girls who wear it, Koda Shirting has high efficiency standards. It was chosen because it has many advantages for coast-to-coast, day-to-day duty . . . long wear, lasting freshness, soil resistance, ease of cleaning.

Koda, Eastman acetate rayon, builds these qualities into the weave. A fine continuous-filament yarn, it is uniform, mile after mile . . . creates a fabric with no "weak spots." Its smoothness makes for extra comfort . . . a sleek texture hard to soil. And it is an inherently launderable fiber, derived from the same pure source-material as other famous Eastman cellulose ester products.

Koda's beauty and suppleness are the inspiration for many of today's leading fashion-fabrics. Koda's endurance makes it first choice for an assignment like this one, as well as for nurses' and war workers' uniforms, specialized Army and Navy uses.

*EASTMAN ACETATE RAYON

M. TENNEY ASSOCIATES, INC., 10 EAST 40TH STREET, NEW YORK CITY, SALES REPRESENTATIVES
R THE TENNESSEE EASTMAN CORPORATION, KINGSPORT, TENNESSEE, SUBSIDIARY OF EASTMAN KODAK CO.

ANDREW K. HENRY

★

RAYON TOPMAKER

VISCOSE

ACETATE

RAYON NOILS

★

158 SUMMER STREET

BOSTON 10, MASS.

New
NAVY BLUE
Formula
Dyehouse Results Show
★ Increased Production
★ Level Shades
May We Show You
This New Formula
To Pass Government
Specifications?
DYESTUFFS • CHEMICALS • INTERMEDIATES
CIBA
COMPANY INC.
Greenwich & Morton Sts.
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VAT DYES OF THE DOW CHEMICAL COMPANY

OUR CONGRATULATIONS GO TO

Synthetic Fibers

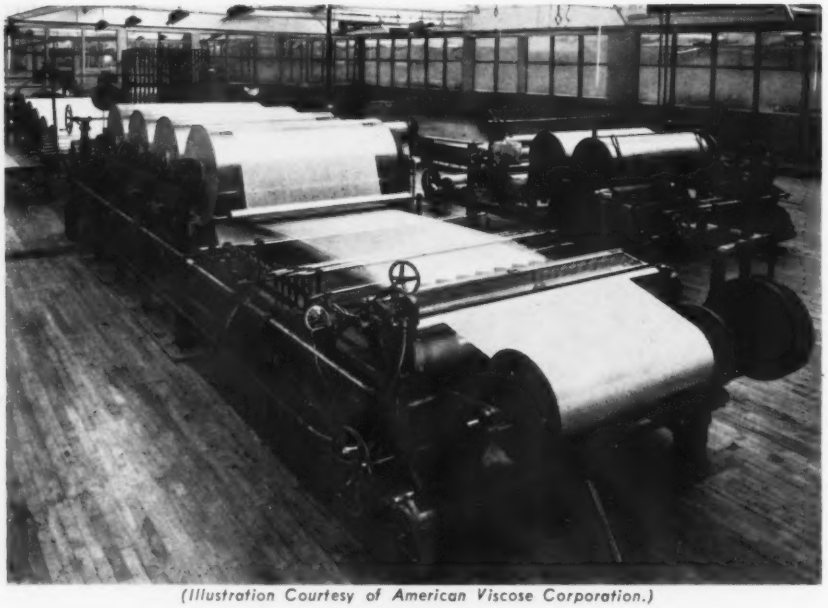
GREATNESS ACHIEVED NOT BESTOWED

LONG before the crises of war-time thrust synthetic fibers into the forefront as a major source of textile supply, these man-made fibers had attained world-wide recognition for quality and versatility.

At every step in this triumphant progress, Johnson Sizers have contributed to it, with machines that made possible both quality and volume production by the mills.

The vast majority of sizers in use today for sizing synthetic warps are—

JOHNSON RAYON WARP SIZERS



(Illustration Courtesy of American Viscose Corporation.)

Manufactured by

CHARLES B. JOHNSON MACHINE WORKS

PATERSON NEW JERSEY

ALOYCO STAINLESS STEEL VALVES

They stay on the line *Not* in the repair pile

ALOYCO has not relaxed its high standards of quality under pressure of greatly increased demand from war industries.

To those who use Stainless Steel Valves, the name "Aloyco" means Reliability. Experience has proven to them that once Aloyco Valves are installed, they are there to stay.

The exceptional durability of Aloyco Valves and Fittings is the result of sound design, correct analysis, experienced foundry practice, careful heat treatment, accurate machining and rigid inspection. Add them all up and they mean trouble-free service in the pipe lines of the process industries.

Send us your inquiries.

ARMY E NAVY

ALOYCO

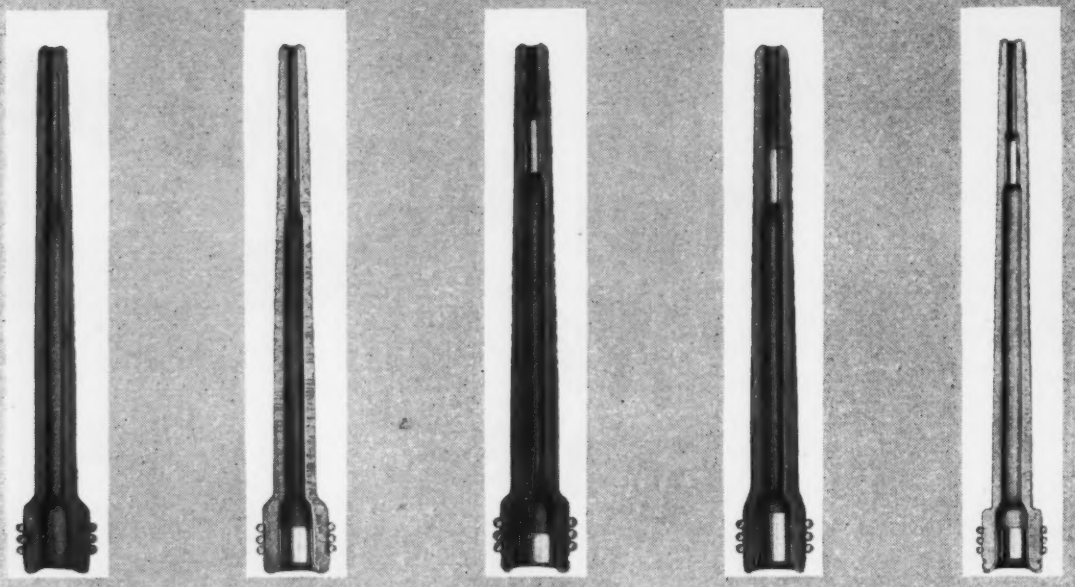
Stainless Steel

VALVES and FITTINGS

GATE VALVES • GLOBE VALVES
Y VALVES • CHECK VALVES
LEVER THROTTLE GATE VALVES
TANK VALVES • SCREWED FITTINGS
FLANGED FITTINGS
GAUGE GLASS FITTINGS

Alloy Steel Products Company, Inc., 1300 West Elizabeth Avenue, Linden, N. J.

WHY METAL FITTINGS...



Without Bushing | Bottom Bushing | Combination Shield and Bushing | Top and Bottom Bushing | Top and Bottom Bushing and Metal Tip

Save Wear - Eliminate Reaming Expense! Prevent Splintering and Reduce Breakage!

With U S "split" stock the turning follows the grain. Makes stronger, smoother, better balanced, truer running, longer lasting bobbins.

THE SEAL OF QUALITY AND SERVICE SINCE 1857 — US

Advantages outweigh the added cost of bobbins with base and top bushings, and metal tips. Fittings pay their way in longer bobbin life, truer running, more uniform yarn, less yarn lost, fewer bobbins to replace per year.

Metal bushed bobbins do not wear loose on spindles or freeze to them, making reaming necessary. They stay at the right height on the sleeve or cone of spindles. Bushings and shields protect against quick wear when clutch spindles are used.

When bobbins are conditioned, it is advisable to use top as well as base bushings. Bushings eliminate reaming and prevent vibration and wobble, because closer tolerances can be obtained. Add metal tips and the bobbins are stronger and less subject to splintering and breakage.

U S makes spinning bobbins to precise specifications from straight grained "split" stock. The only textile accessories manufacturer making their own metal fittings, U S can supply metal fittings designed to meet your exact needs.

Our U S Textile Accessories include improved types of Bobbins, Shuttles, Spools, Cones, Rolls, Tubes and cardroom Bobbins and Skewers. Consult our technically trained representative on ways and means for speeding up mill production and cutting down maintenance costs.

U S WHY No. 3. Watch for More U S Whys in these pages

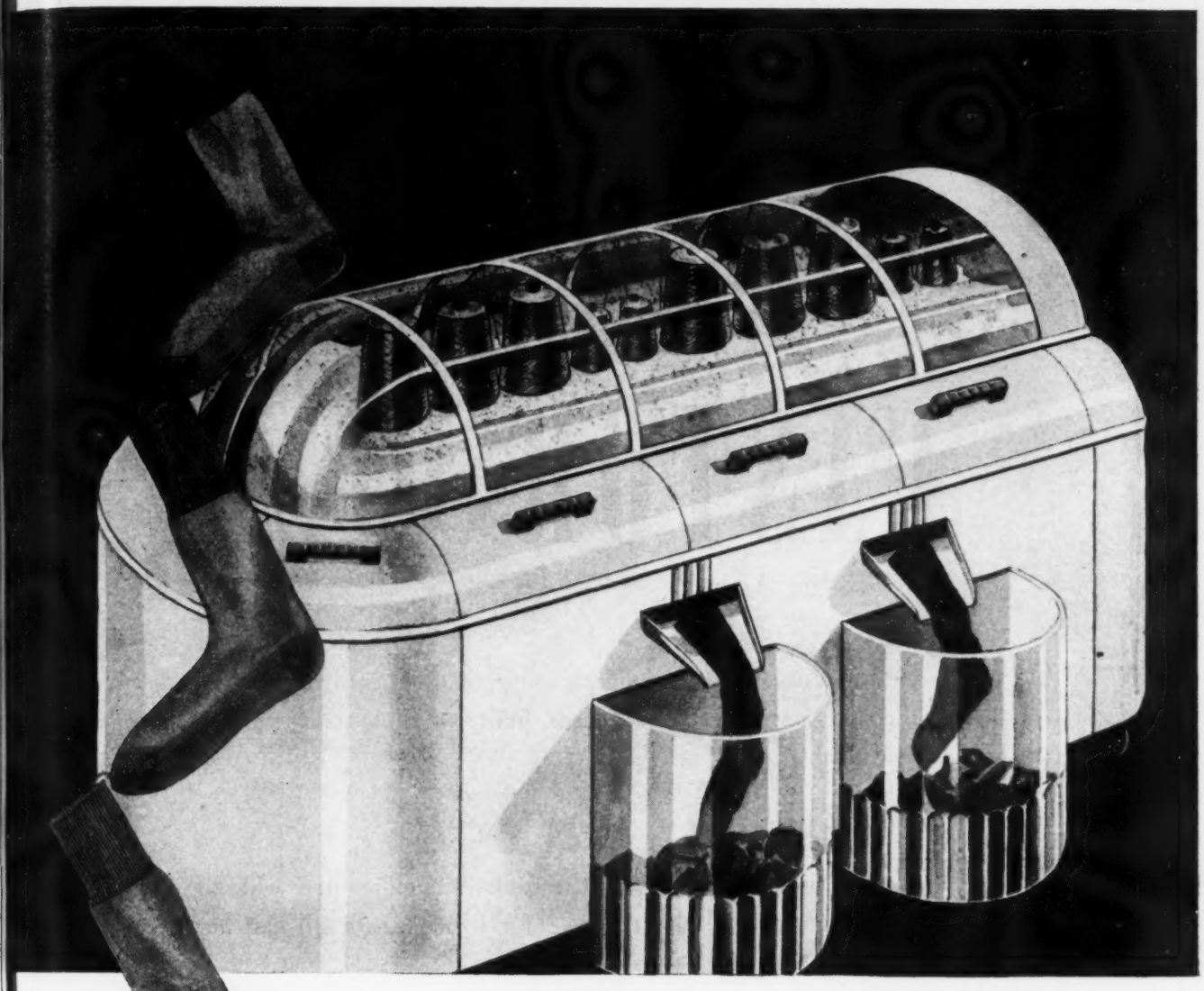
U S BOBBIN & SHUTTLE CO.

LAWRENCE, MASS.

PROVIDENCE, R. I. JOHNSON CITY, TENN. GREENVILLE, S. C. CHARLOTTE, N. C.

CHICAGO AGENT: Albert R. Breen, 20 E. Jackson Blvd. CANADIAN AGENT: W. J. Westaway, Montreal

ALABAMA AGENT: Young & Vann Supply Co., Birmingham



The Machine of Tomorrow for Producing Hosiery

ready for the finishing room may not be as streamlined as the illustration, but the hosiery knitting industry may reasonably look for great changes.

More accurate controls of tension and stitch, of moisture regain and of contamination—these are sure—likewise, the combination in a single machine of a sequence of operations now requiring separate units and the transfer tax of time.

Similarly, other machines, in many fields of industry, will pass new milestones of development. Some of these have advanced no farther than a rough sketch; some have emerged from the nebulous stage to the drawing board or to the stage where some practical link is all that is needed to convert an idea into a practical machine.

For such, solution may easily lie in the kind of experience and talent which, at FIDELITY, have developed a whole succession of ingenious and highly practical machines for different industries.

This experience and talent, together with the facilities for converting them into productive units, are described in an interesting book, "Facilities."

It will be sent on request to responsible executives.

ARMY E NAVY

32 YEARS' EXPERIENCE

Builders of Textile Machinery, including Circular Knitting Machines, Skein Reelers, Backwinders, Fidelity-Rolandé Course Counters and Universal Ribbers

FIDELITY MACHINE COMPANY

3908-18 FRANKFORD AVENUE, PHILADELPHIA 24, PA.

4 Important Facts about

SULPHONATED CASTOR OIL

1. Although castor oil is under strict government control, it may be obtained for a wide variety of uses. Many of these uses are not generally known.

2. Our many negotiations with the controlling office in Washington have familiarized us with the uses for which castor oil can be obtained.

3. We may be able to help you get your needed supply.

4. By filling out our form JW 32-600, and allowing us to present your appeal, you may easily meet your requirements for Sulphonated Castor Oil.

SEND FOR FORM JW 32-600

JACQUES WOLF & CO.
Chemicals PASSAIC, N. J.

WAREHOUSES: Providence, R. I., Philadelphia, Pa., Utica, N. Y., Chicago, Ill., Greenville, S. C., Chattanooga, Tenn., Knoxville, Tenn., Charlotte, N. C., Milwaukee, Wisc., Columbus, Ga.

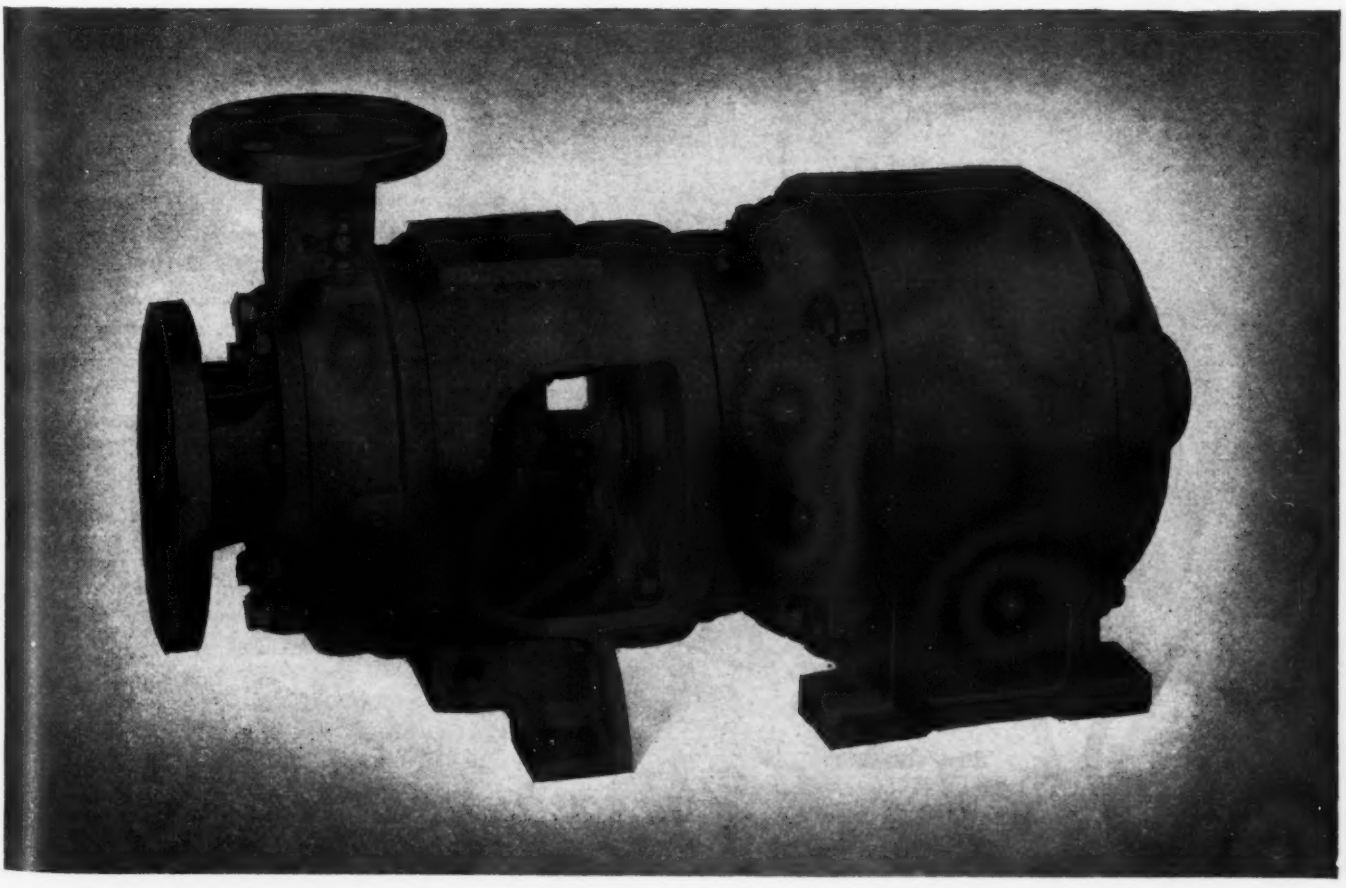
JACK OF ALL TRADES
and master of them too

The Motorpump is truly a jack-of-all-trades, and master of them too, because of its compactness, sturdiness, efficiency and adaptability. Wherever liquids are being handled you will find Motorpumps—from refineries to ships and from the tropics to the arctic. • Motorpumps are available in a wide range of sizes and all can be installed easily without costly special foundations. Capacities range up to 1800 gpm and discharge heads up to 500 ft. • Thousands of them in all sorts of services are speeding the transport of liquids—liquids that keep machines on the job; liquids needed in processes; liquid foods; liquids that must be removed to keep mines operating, to speed construction work; etc. Ingersoll-Rand Company, Cameron Pump Division, 11 Broadway, New York, N. Y.

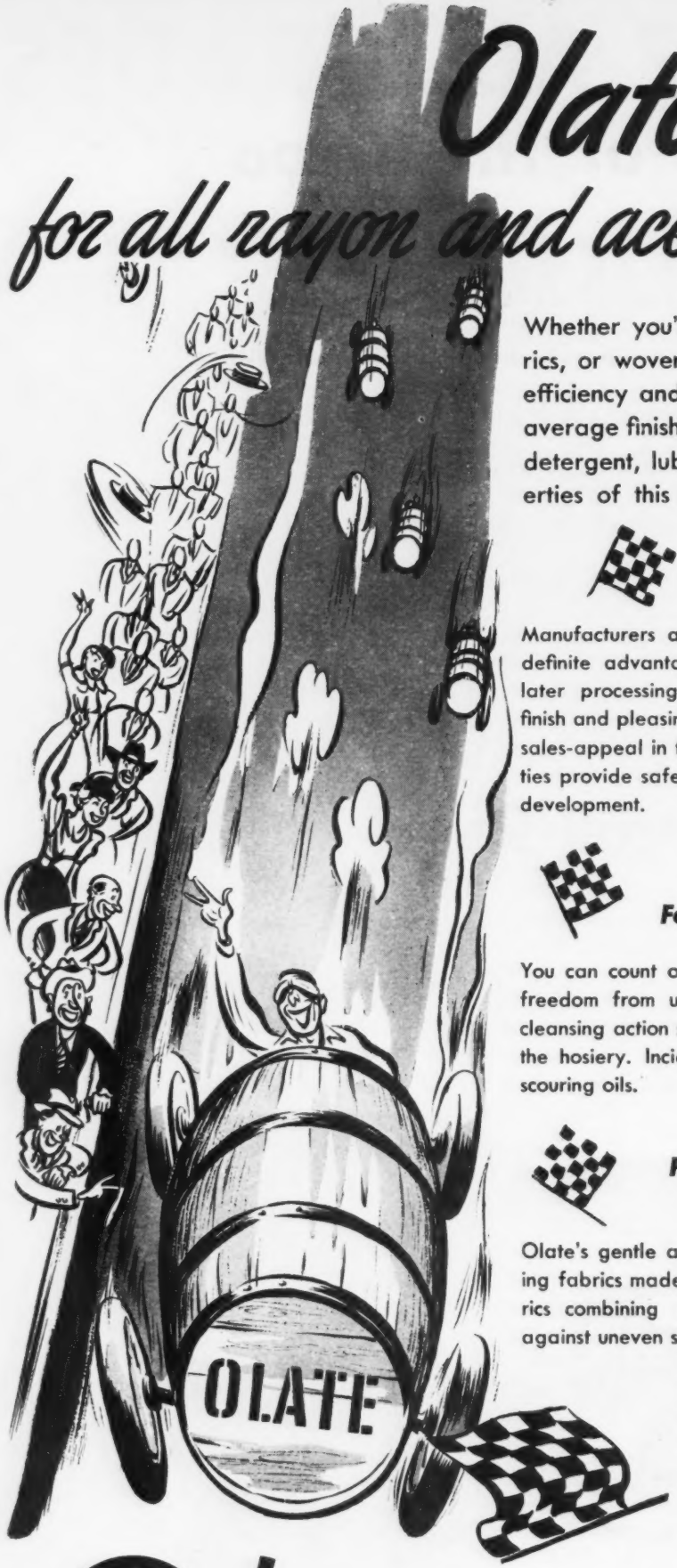
Ingersoll-Rand

CENTRIFUGAL PUMPS • CONDENSERS • OIL AND GAS ENGINES • ROCK DRILLS • AIR TOOLS • TURBO-BLOWERS • COMPRESSORS

9-298



Olate is a "safe bet" for all rayon and acetate processing



Whether you're a processor of rayon hosiery, knitted fabrics, or woven piece goods, it's a safe bet that Olate's efficiency and safety can help you turn out a better-than-average finished job. A safe bet because of the exceptional detergent, lubricating, wetting out, and penetrating properties of this pure, neutral, low titer soap.

For Yarn Finishing

Manufacturers and processors of rayon and acetate yarns will find definite advantages in using Olate—advantages which show up in later processing operations. Olate-scoured yarns give fabrics the finish and pleasing handle which contribute so much to eye-appeal and sales-appeal in the finished product. Olate's exceptional rinsing qualities provide safeguards with respect to oxidation, rancidity, and odor development.

For Hosiery Scouring and Dyeing

You can count on a top-notch scouring job with Olate—and unusual freedom from uneven dyeing. At top-notch speed, too, for Olate's cleansing action starts the minute its fluid solutions come in contact with the hosiery. Incidentally, Olate costs you less than most proprietary scouring oils.

For Scouring and Dyeing Woven Piece Goods and Knit Fabrics

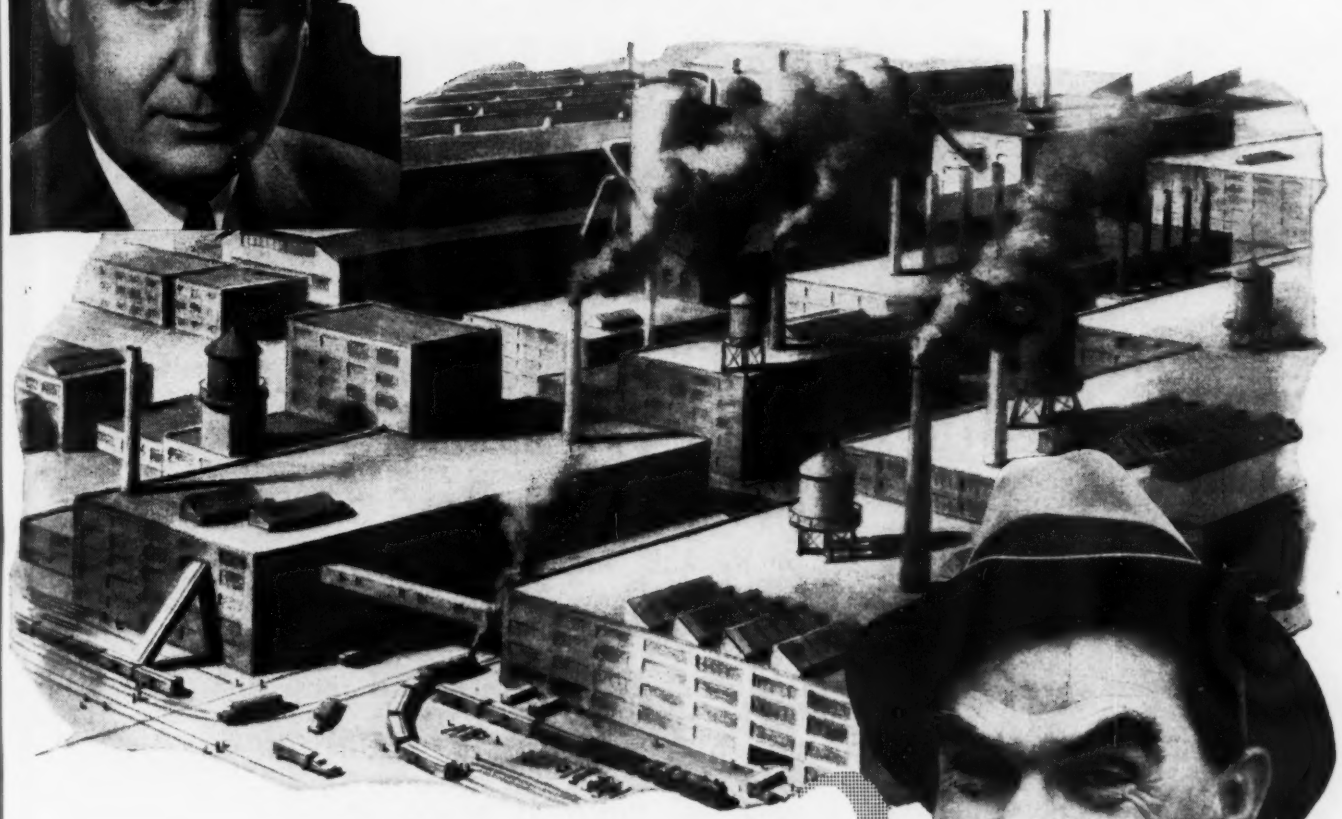
Olate's gentle action has important advantages in scouring and dyeing fabrics made entirely from rayons and acetates, as well as in fabrics combining man-made and natural fibers. Olate helps guard against uneven shrinkage, streaks, dye blotches, and chafe marks.

In these wartime days, safe, efficient processing agents are essential for speedy production. These are days when Olate's exceptional processing performance . . . the safeguards it provides against costly, wasteful tie-ups and rejects . . . mean more than ever.

PROCTER & GAMBLE

Olate the universal textile soap

"I WANT A Good Roof I CAN PUT ON AND FORGET!"



"THAT'S A CELOTEX Built-Up Roof!"

ALL OVER AMERICA, the big swing is to famous Celotex Built-Up Roofs. Years of trouble-free protection is one reason—economy is another. The recommendations of leading roofing contractors is another factor in the rapidly increasing number of Celotex Built-Up Roofs.

The well known Celotex standard of quality assures you of the finest materials. In addition, the careful selection of contractors authorized by Celotex to apply Built-Up Roofs guarantees you "a *good roof* you can put on and forget."

Before you plan a roof, call in the Celotex roofing contractor near you. He's a hand-picked expert who knows his business—whose counsel and advice will save you money. Mail the coupon!

THE CELOTEX CORPORATION • CHICAGO

CELOTEX

REG U S PAT OFF

ROOFING · INSULATING BOARD · ROCK WOOL
GYPSUM WALL BOARD · LATH · PLASTER
SOUND CONDITIONING PRODUCTS

THE CELOTEX CORPORATION, CHICAGO TW 9-43

Please send me complete information on Celotex Built-Up Roofs and Celotex Vapor-seal Roof Insulation.

Name .....

Address .....

City .....

County ..... *State* .....

WHAT IS MACHINERY'S No. 1 ESSENTIAL?

". . IT'S LUBRICATION OF THE RIGHT KIND that will keep production machines in good operating condition and continuously on the job. Idle machines due to worn bearings, gears or chains, caused by improper lubrications are certainly on the blacklist these days . . . and remember that machine replacement parts are most difficult to get. Yes—the No. 1 essential today is proper lubrication.

★ ★

7 QUICK FACTS ABOUT LUBRIPLATE LUBRICANTS

1. *LUBRIPLATE produces an ultra-smooth, wear-resisting bearing surface.*
2. *LUBRIPLATE reduces friction, thus lowering maintenance and power costs.*
3. *LUBRIPLATE resists rust, corrosion and pitting.*
4. *Most LUBRIPLATE products are white. LUBRIPLATE assures clean lubrication.*
5. *LUBRIPLATE outlasts ordinary lubricants many times.*
6. *LUBRIPLATE is economical—a little goes a long way.*
7. *LUBRIPLATE is available in fluid and grease types for every need.*

LUBRIPLATE DIVISION
FISKE BROTHERS REFINING COMPANY
SINCE 1870

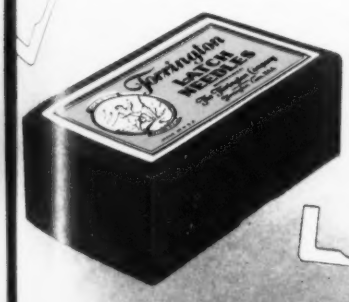
Newark, N. J. Toledo, Ohio
DEALERS FROM COAST TO COAST

LUBRIPLATE

"Its the Film"

THE MODERN LUBRICANT *that Arrests Progressive wear*

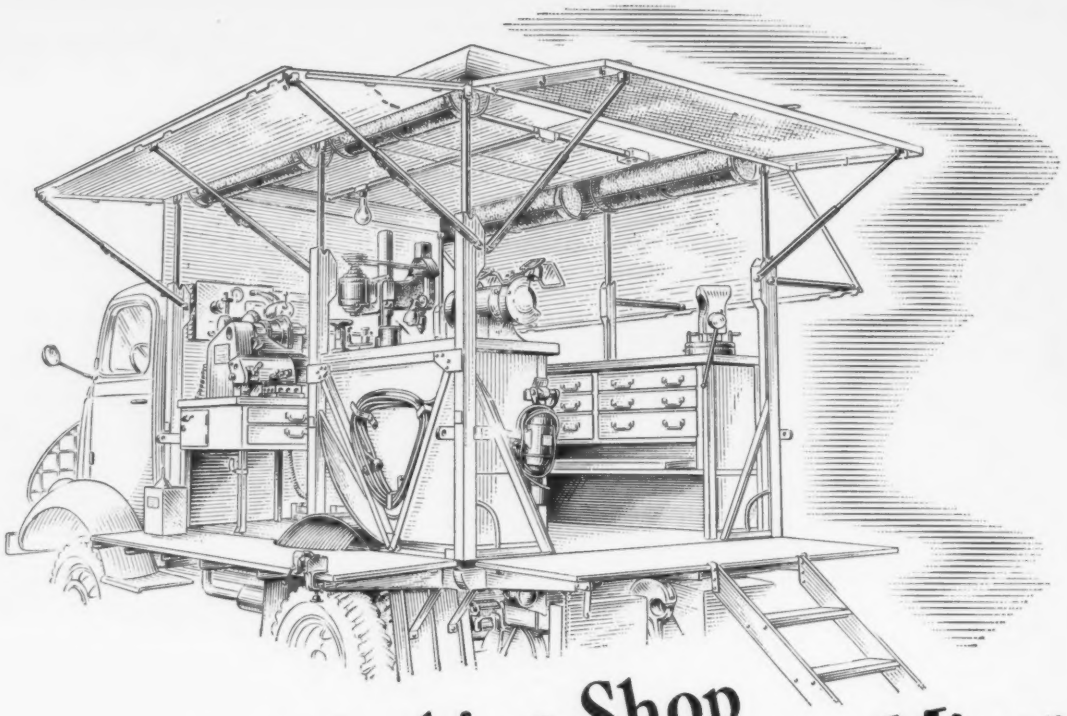
Painstaking care is being exercised by more and more men today in the selection of their hosiery. It is a practice made necessary by wartime shortages and will become a lifelong habit among the many who are learning to distinguish true quality. It means that manufacturers must pay increasingly careful attention to knitting. Here is where Torrington Needles, with their accurately engineered quality and machine-controlled uniformity, can prove their value to you. They can help to increase the efficiency of your machines, reduce your costs and keep your knitting standards on a business-building basis.



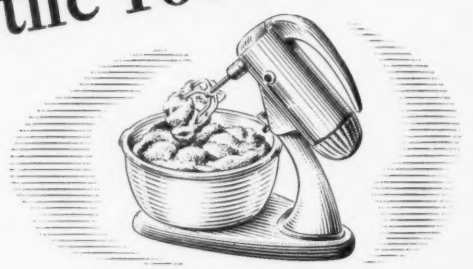
TORRINGTON latch NEEDLES

The Torrington Company, Torrington, Conn., U. S. A., Established 1866

Branches: New York • Philadelphia • Chicago • Greensboro, N. C. • Boston • St. Louis • Toronto, Canada



The Mobile Machine Shop Prizes a Part from the Food Mixer



IT MIGHT SEEM strange that a truck equipped to make repairs in the field should find anything of value in a household kitchen mixer. The food mixer is a "lady's man" and so must be trim, light in weight, and stout-hearted. That's why food mixer manufacturers prefer Torrington Needle Bearings—their compact size and ease of lubrication give this modern kitchen equipment much of its "sex appeal."

The mobile machine shop, on the other hand, is *designed* for repair work. Rugged, hard-driven, it is equipped with various kinds of machine tools to do just that. But it was the repair and servicing of planes, tanks and other mechanized equipment "knocked out" in battle that our Armed Forces had in mind when they designed the mobile machine shop. And the Needle Bearing's adaptability to machine tool design looked to Army engineers, as it did to the food mixer people, like just their dish. As it turned out, there were *other* features on the bill of fare of this unusual anti-friction bearing that any repair crew in the field would welcome—the ability to stand up in the severe service a mobile machine shop knows... effective lubrication, low coefficient of friction, increased efficiency of operation...and, of course, the fact that it needs so little attention.

NEEDLE BEARINGS—ALL TYPES—ALL SIZES

NEEDLE BEARINGS TYPE DC are complete, self-contained units consisting of a full complement of rollers and a drawn, hardened outer race. They offer the advantages of small size, low cost, high capacity—and easy installation.

NEEDLE BEARINGS TYPE NCS consist of a full complement of rollers and a relatively heavy hardened outer race. They are furnished with or without inner races. Needle Bearings Type NCS are adaptable to heavier loads than Needle Bearings Type DC.

NEEDLE ROLLERS TYPE LN are produced in a range of types and sizes for assembly on the job into low-cost, high-capacity, anti-friction bearing units. Our engineering department will be glad to advise on the correct size and type for any application.

THE POINT IS YOUR POSTWAR DESIGNS

In considering ways to improve your own product's design for postwar, there's more than one useful idea in the Needle Bearing. For war work has awakened many of *your customers* to the advantages, in performance and cost economy, of compact design, savings in weight, infrequent lubrication and long service life—features which identify the Torrington Needle Bearing. Torrington engineers will be glad to assist you in adapting this new-day bearing to your future designs. Catalog No. 116 listing sizes, ratings and typical applications will prove helpful, also, as preliminary information.

THE TORRINGTON COMPANY

Established 1866 • Torrington, Conn. • South Bend 21, Ind.

Makers of Needle Bearings and Needle Bearing Rollers

New York · Boston · Philadelphia
Detroit · Cleveland · Seattle
San Francisco · Chicago · Los Angeles
Toronto · London, England

LET'S GO! WAR · KEEP 'EM FLYING

TORRINGTON NEEDLE BEARINGS

Electronics IN EVERY PLANT

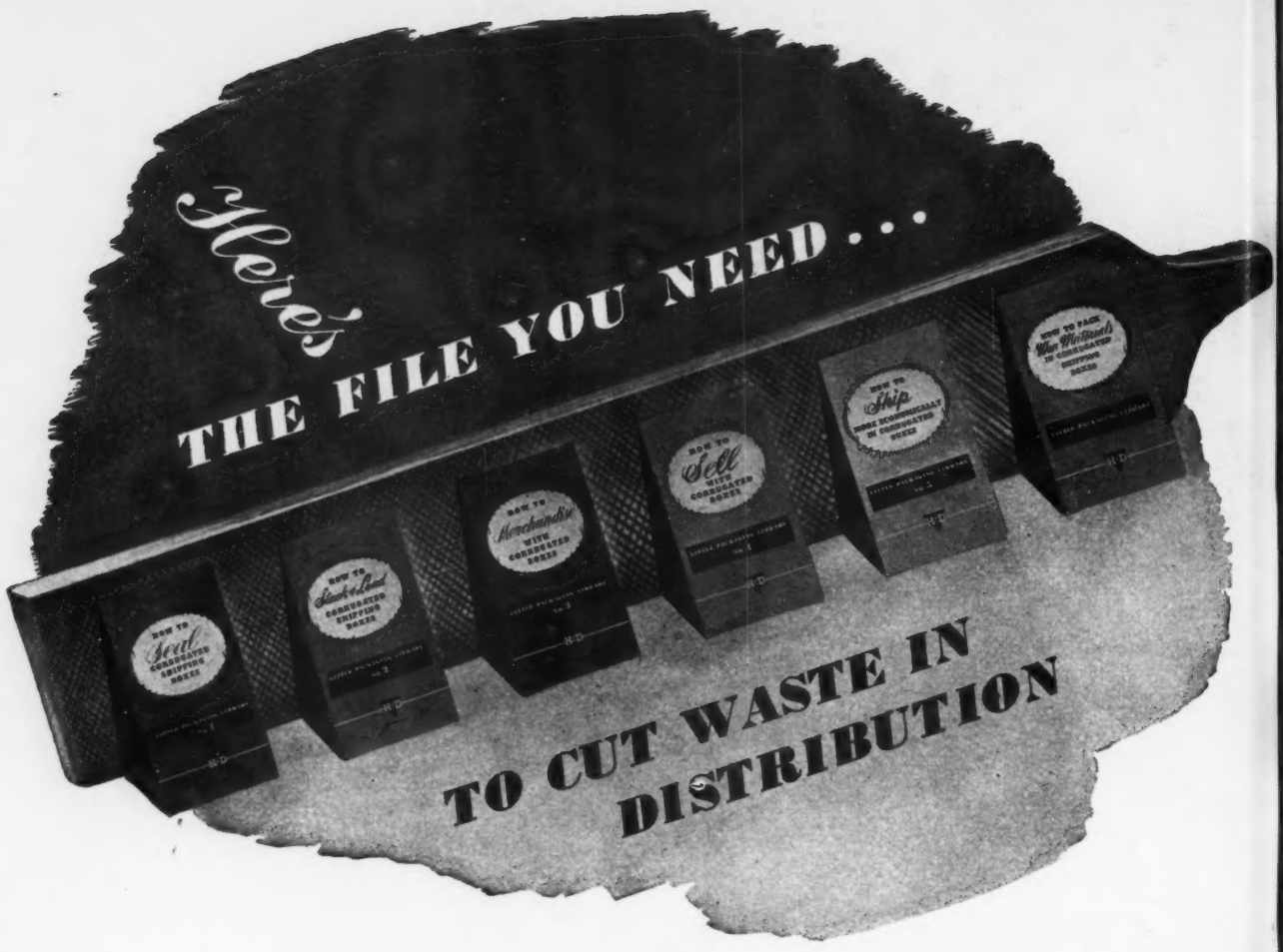
THE magic of Electronics will be used in every plant to create new and useful products—to multiply production—to effect economies—to do heretofore impossible tasks of measurement and control of industrial processes.

Already, M-H/Brown engineers have pioneered and developed new Electronic instruments which will take the word "impossible" from the industrial lexicon.

In this hour of history M-H/Brown engineers fittingly symbolize our faith in the future — that Electronic instrumentation (now at war) will blaze new trails in the manufacture of peacetime products. The Brown Instrument Company, 4509 Wayne Avenue, Philadelphia, Pennsylvania, a division of Minneapolis-Honeywell Regulator Company, Minneapolis, Minnesota. Offices in all principal cities. 119 Peter Street, Toronto, Canada—Wadsworth Road, Perivale, Middlesex, England—Nybrokajen 7, Stockholm, Sweden.

Instruments by **BROWN** *and Controls by*

MINNEAPOLIS-HONEYWELL


Here's
THE FILE YOU NEED . . .
TO CUT WASTE IN DISTRIBUTION
How to Sell with Corrugated Boxes
How to Ship More Economically in Corrugated Boxes

IT'S HANDY . . . it's helpful . . . it has dozens of applications in hundreds of businesses. It will help you smooth out rough spots in packing, shipping and distribution, give you an edge in efficiency.

There's no time like the present to make use of this tool. The enormous load being carried by the railroads means inevitable waste of materials, machinery, manpower and transportation facilities. That waste can be curtailed only if every manufacturer takes immediate steps to improve shipping methods.

The first step is to send for this complete file of packaging "text-booklets." Every man in your organization who is concerned with shipping and distribution will find this "refresher course" in packaging a definite aid in locating and correcting many of his problems. Write for as many sets as you need . . . they're yours for the asking, FREE, without obligation.

Protect the Product

BETTER SEE H&D AUTHORITY ON PACKAGING

HINDE & DAUCH Executive Offices: 4330 Decatur Street, Sandusky, Ohio

FACTORIES in Baltimore • Boston • Buffalo • Chicago • Cleveland • Detroit • Gloucester, N. J.
Hoboken • Kansas City • Lenoir, N. C. • Montreal • Richmond • St. Louis • Sandusky, Ohio • Toronto

HOW YOU CAN INSURE MAXIMUM TENSILE STRENGTH OF WOOL FIBERS

USE LEVANA IN THE DYE BATH

Soldiers, sailors, marines are tough on equipment. Think of the "wear and tear" your government woolens must undergo in the service of the armed forces! To insure *maximum* strength — add Levana to the dye bath. This *original* Sandoz formula protects wool fibers against the action of alkalies . . . steps up the tensile strength of the finished fabric!

Levana prevents felting and shrinking . . . preserves the "soft hand" of fine woolens. Economical and easy to use . . . Levana is readily soluble in water. Long used by leading textile mills, today Levana is in greater demand than ever — when military requirements call for greater wear and durability in every yard of government goods.

IMPORTANT NOTICE!

DYERS OF RAW STOCK

✓ Levana improves weaving efficiency

Insures highest tensile strength

DYERS OF YARNS and PIECE GOODS

✓ Levana improves level dyeing

Insures tensile strength

Prevents felting and shrinking

Only Sandoz Makes Levana

Write today for a WORKING SAMPLE OF LEVANA. Also ask for Catalog No. 33-A. Or — if you have a specific problem that calls for "on-the-spot" action — Sandoz technicians are available to visit your mill. They are in a position to benefit you by the experience gained in years of plant work.

SANDOZ

SANDOZ CHEMICAL WORKS, INC., 61-63 Van Dam Street, New York, N. Y.

BOSTON, MASS. • CHARLOTTE, N. C. • PATERSON, N. J. • PHILADELPHIA, PA. • PROVIDENCE, R. I. • CHICAGO, ILL. • LOS ANGELES, CALIF.

*SPECIFIC

T I D E W A T E R L U B R I C A N I A

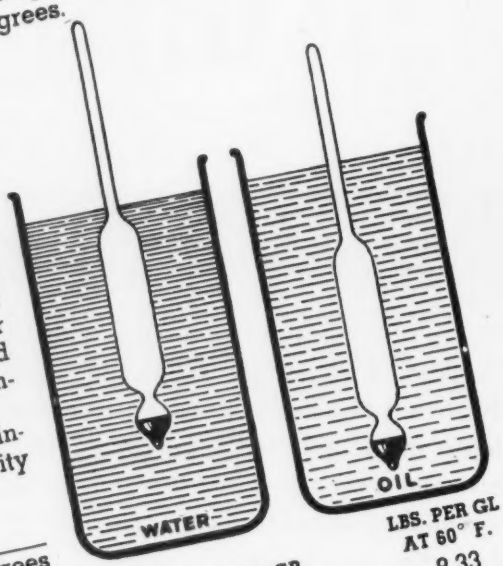
DEFINITION: The gravity or density of a liquid is a numerical value which enables the determination of the weight of a known volume of the product.

GRAVITY A.P.I. The gravity of petroleum products in the United States is generally obtained by means of a hydrometer graduated on the A.P.I. (American Petroleum Institute) scale. It is reported as Gravity in degrees A.P.I. Unless otherwise stated, it applies when the product is at a temperature of 60° F. If taken at a higher or lower temperature a correction is applied to reduce the reading to the standard 60° F. temperature.

The A.P.I. Gravity bears a definite relationship to specific gravity according to the formula:

$$\text{Sp. Gr.} = \frac{141.5}{131.5 + \text{A.P.I. degrees}}$$

The A.P.I. scale differs from the Baumé scale (used for non-petroleum liquids lighter than water) by only one-tenth to seven-tenths degrees.



EXAMPLES:	GRAVITY A.P.I.	SPEC. GR.	LBS. PER GL AT 60° F.
Water (distilled)	10°	1.00	8.33
Kerosene	36-40°	0.84-0.82	7.03-6.87
Machine Oil (paraffinic)	24-30°	0.91-0.88	7.58-7.30
Machine Oil (naphthenic)	18-22°	0.95-0.92	7.88-7.68

SIGNIFICANCE: Gravity is of little significance to the user. The quality or suitability of a lubricant is more readily appraised by other tests.

DRUMS! DRUMS! DRUMS!

War needs make it extremely important that all empty drums be returned immediately.

TYCOL lubricants are made from the most suitable materials and carefully refined to meet the most stringent laboratory specifications and service requirements. Scientific manufacture from the finest available material assures unvarying high quality in all Tycol lubricants.

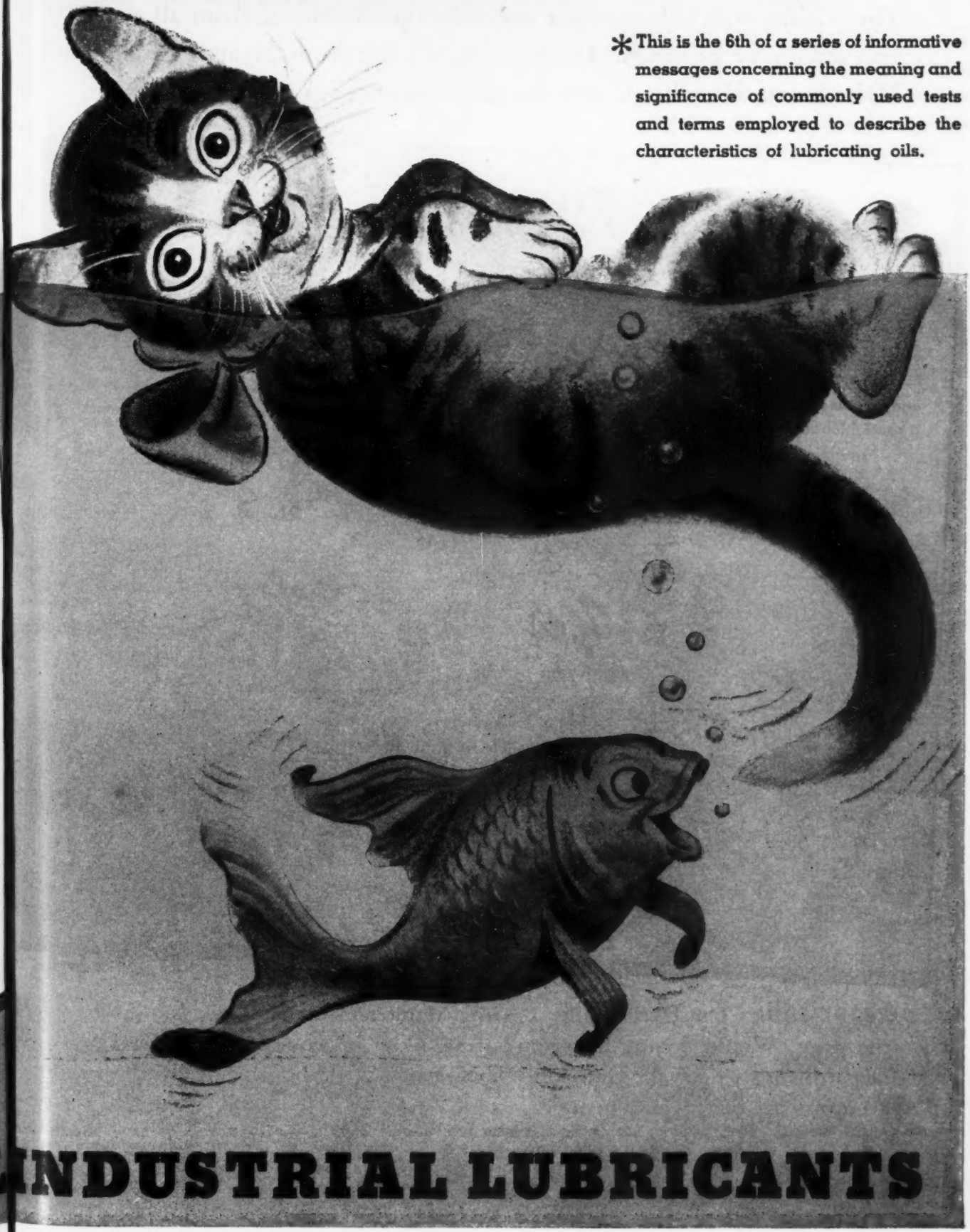
TIDE WATER ASSOCIATED OIL COMPANY

Eastern Division: 17 Battery Place, New York 4, N. Y.
Principal Branch Offices: Boston, Philadelphia, Pittsburgh, Charlotte, N. C.

MAKERS OF THE FAMOUS VEEDOL MOTOR OIL

SCIENTIFICALLY ENGINEERED FOR EVERY INDUSTRIAL USE **TYCOL**

GRAVITY



* This is the 6th of a series of informative messages concerning the meaning and significance of commonly used tests and terms employed to describe the characteristics of lubricating oils.

INDUSTRIAL LUBRICANTS

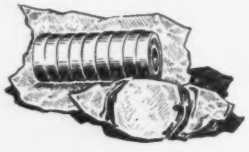
When Installing Bearings

IT PAYS TO BE A "YES-MAN"

These hints will help you get maximum performance from all types and makes of bearings. They are highlights from Hyatt's Bearing Maintenance Handbook, and are published here as a wartime service.

Yes

Keep bearings clean... away from dust, dirt and moisture. Leave them in original wrappings until ready for use. (Hyatt Roller Bearings are protected against rust and corrosion by a special lubricant)

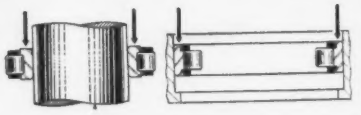


No

Do not handle bearings unnecessarily; avoid touching roller operating surfaces, as moisture from the hands may cause rust. Be sure that hands, tools and surroundings are clean at all times.

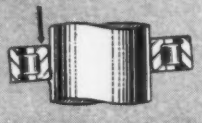
Yes

When bearings or bearing parts are assembled on a shaft, apply pressure to end of inner ring or race; when in a housing, apply pressure to end of outer race. Lubricate all shaft and housing surfaces which are in contact.



No

Never apply pressure to roller cages, ball retainers, seals or end rings. Don't "cock" the race ... damage to both shaft and bearing will result. Always apply pressure to the race ends straight and square.

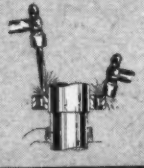


Yes

Assemble bearing on shaft and into housing carefully to avoid scoring races and rollers. Lubricate thoroughly and regularly according to manufacturers' specifications, using fresh, clean lubricant.

No

Never, never, NEVER strike any part of any bearing with a hammer. Use an arbor press, hammer-and-drift, or bearing driver instead. Avoid using wooden or soft metal mallet, as chips may get into the bearings.



READY SOON: The Hyatt Roller Bearing Maintenance Handbook is now on the press. Would a copy help you? If so, write on company letterhead to Department 204, Hyatt, Harrison, New Jersey. We'll be glad to send you a copy with our compliments.

HYATT ROLLER BEARINGS

HYATT BEARINGS DIVISION · GENERAL MOTORS CORPORATION · HARRISON, N. J.

This is the picture of the mill master mechanic who sent orders for each of his stainless steel requirements to a *different* supplier.

This is the picture of the master mechanic who sent *all* his orders for stainless steel items to Industrial Steels.

This is the picture of the master mechanic who has just found out he can purchase a restricted quantity of stainless steel from us without priority or allotment number.

A Partial List STAINLESS STEEL PRODUCTS

- ANGLES
- BARS
- BOLTS
- CASTINGS
- FITTINGS
- FORGINGS
- NUTS
- PAILS
- PIPE
- PLATE
- RIVETS
- SCREWS
- SHEETS
- TAPER PINS
- TUBING
- VALVES
- WASHERS
- WELDING ROD

Another way to make everyone in the mill happy is to use Industrial Surface Hardened stainless steel thread guides or pigtails which are now available. Write us for further information.

INDUSTRIAL STEELS, INC.

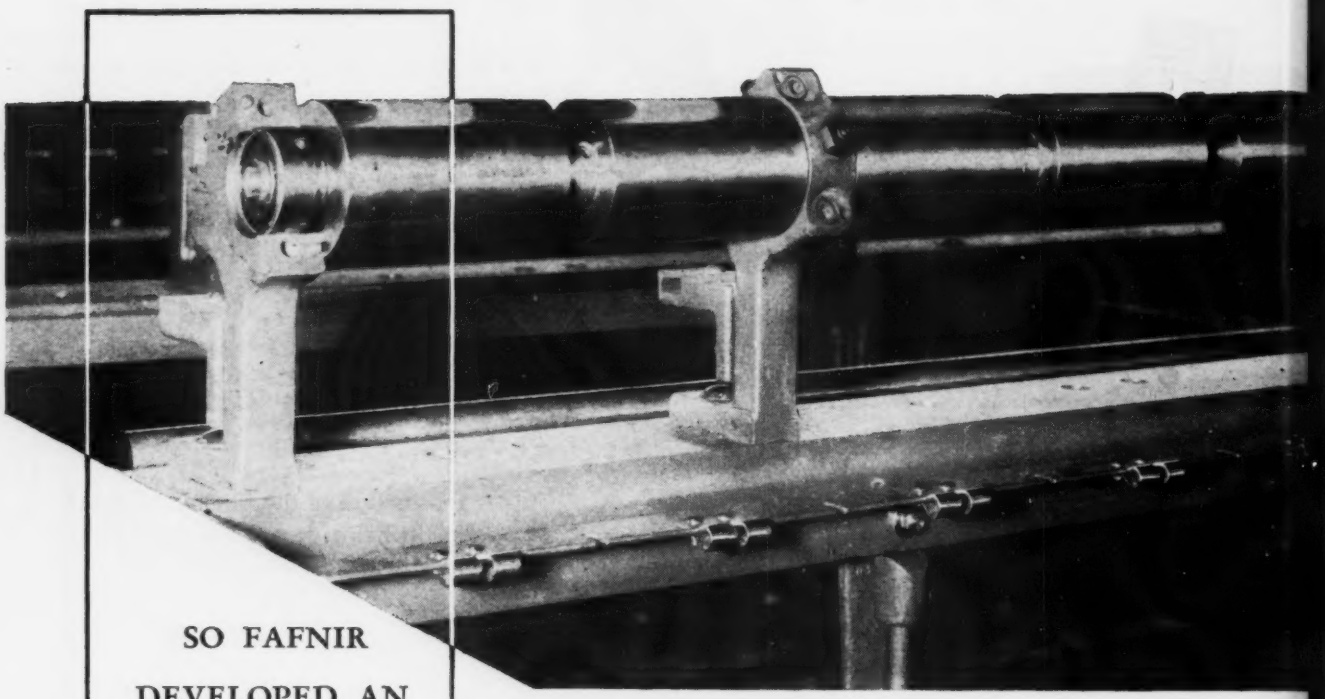
"Specialists in Stainless"

250 BENT STREET
CAMBRIDGE, MASS.

Telephone
TROwbridge 7000
Teletype
Cambridge 547

"Make it SPEEDY...but SPOTLESS"

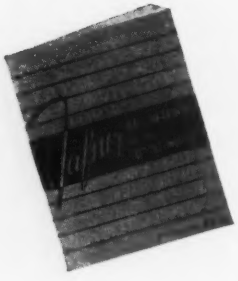
Demanded the Rayon Industry . . .



SO FAFNIR DEVELOPED AN INGENIOUS NEW BEARING FOR WHITIN MACHINE WORKS

Like many another part of rayon-making equipment, Twister Feed Rolls make unprecedented demands on the bearings which support them. *They must be clean* . . . incapable of contaminating yarn. *They must be fast and frictionless* . . . demanding ball bearings. *They must be reliable,* for 24-hour-a-day operation.

Fafnir met these problems squarely and licked each in turn for the Whitin Machine Works application shown. Insured cleanliness by eliminating all possibility of lubricant leakage – through use of a ball retainer of porous bronze, which gives up oil only as the polished bearing surfaces need it – no oversupply possible. Gained accurate, frictionless service through famous Fafnir standards of precision, which assure a friction-free bearing from the start, and virtual elimination of wear in service. Assured further dependability by incorporating protective shields to keep dirt and dust out of the bearing, and giving exposed parts special corrosion-resistant treatment. Tested now in thousands of hours of continuous operation, these Fafnirs have definitely proved their contribution to rayon progress.



Get acquainted with Fafnir's specialized Textile Bearing line – and with the sound Fafnir engineering service which stands ready to develop bearings to meet your unusual applications. The Fafnir Bearing Company, New Britain, Connecticut.

ARMY (E) NAVY

FAFNIR *Ball Bearings*

All You Wish For . . . Every woman knows that only the finest of stockings can help her attain the exciting new loveliness she so desires. Every hosiery manufacturer knows that his fabric can only be as good as the needles will produce. Keep your knitting machines young and effective with TMW Needles . . . *And remember: Regular Reneedling Pays! Let us put your needle bars in shape for faster, more accurate, more profitable knitting.*

TEXTILE MACHINE WORKS • READING, PA.

"The water that is past cannot make the mill go

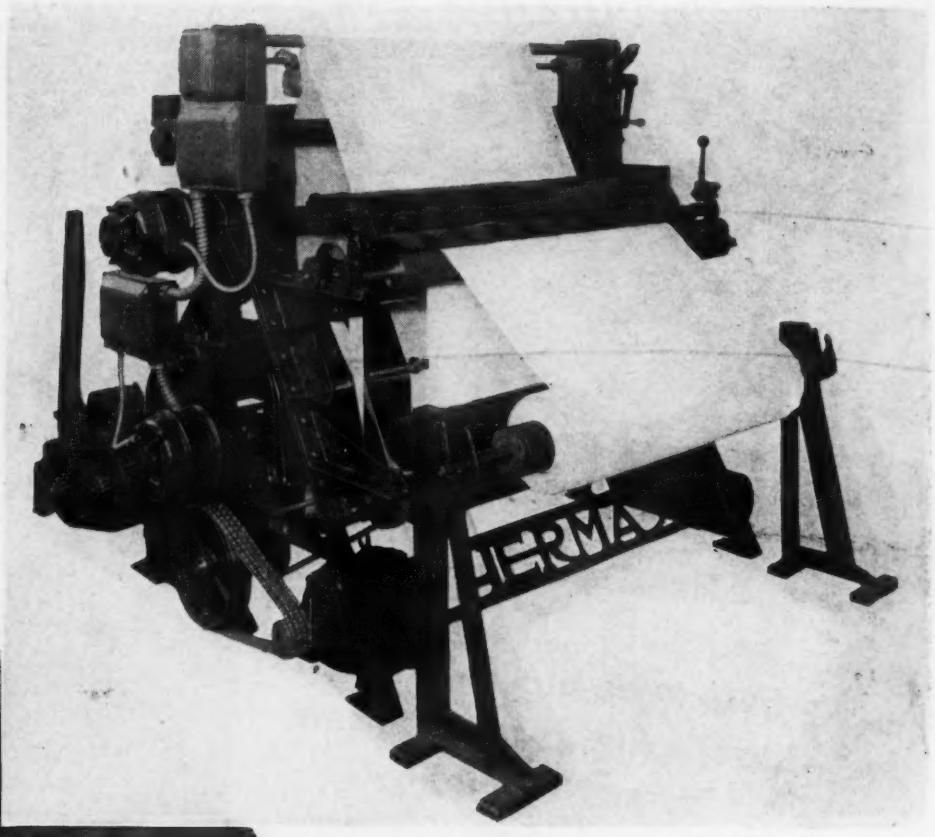
THOMAS DRAKE

Until the Victory is Won! . . . The men and experience back of Reading Full-Fashioned Knitting Machines are enlisted for the duration. We *cannot* give you new machines — but we *will* do the next best thing: Our engineers will do their utmost to help you keep your present equipment at highest efficiency. *Let us tell you about our complete reconditioning service and what it means in terms of better fabrics and bigger profits.*

TEXTILE MACHINE WORKS • READING, PA.

First award in America of the 3-Star Army-Navy "E" made to TMW for Ordnance production up to January 25, 1943.

Shears REMOVE SELVAGE ENDS ON SKF BEARINGS



● *Built by*
THE HERMAS
MACHINE CO., INC.

Another machine that enlisted when the Textile Industry went to War is this Hermas Automatic Shear. Another machine that depends upon SKF Ball Bearings as it removes heavy selvage ends as well as threads hanging from the face and back of goods. Many textile machines that handle war fabrics are SKF-equipped for the reason that SKF's have smooth-running characteristics . . . maintain factory tolerances throughout long machine life . . . never need adjustments. To use SKF's is to spur Production onward and upward. 5380

SKF INDUSTRIES, INC., PHILA., PA.

"Gulf Quality Lubricants

smooth the way to greater production—

help keep our equipment operating at top wartime speed and efficiency"

says this Mill Superintendent

"Proper lubrication with Gulf oils and greases is a mighty important factor in holding our production up to schedule 168 hours a week," says this Superintendent. "With these quality lubricants we get top performance from our equipment and head off serious mechanical troubles."

It is vitally important today that every bearing and moving part of your production equipment give the longest possible service. And because lubrication has such a direct effect on the life of these parts, more than ordinary attention should be paid to this basic maintenance factor.

For effective help in improving your lubrication practice, call in a Gulf Lubrication Service Engineer. His thorough training and broad practical experience with the lubrication of equipment similar to yours can go right to work in your mill to help you step up production and reduce maintenance costs.

The services of a Gulf Engineer—and the Gulf line of more than 400 quality oils and greases—are available to you through 1200 warehouses in 30 states from Maine to New Mexico. Write, wire, or phone your nearest Gulf office today.

FOR VICTORY BUY UNITED STATES
WAR BONDS AND STAMPS

GULF INDUSTRIAL LUBRICATION

GULF OIL CORPORATION
GULF REFINING COMPANY
Gulf Building, Pittsburgh, Pa.

IN THE TIGHT SPOTS IT'S A STAR

To meet special market conditions, **The American Can Company** engaged STAR to accommodate a 25-cycle motor to a 60-cycle space in their high speed can-closing machine. This meant fitting the horsepower required to a space of smaller diameter. STAR—as usual—*engineered* this ticklish "tight spot" successfully through its unique welding process without special molds or castings. Just another example of Star performance which combines the flexibility of specialized application and engineering with standardized design.

Star Electric Motor Company
Bloomfield, N. J.

For 33 years, Star Motors have provided a complete line of standard as well as special motors—in sizes from ½ to 200 H.P. Today they provide dependable power for many applications. Write us about your requirements.

POWER **PACKAGED** AS YOU NEED IT

ARMY E NAVY

STAR MOTORS

ON GUARD!

Not things of beauty, those huge ungainly barrage balloons that hover over our convoys at sea and over cities and bases overseas! But our boys know well how comforting it is to see in the sky these tough, durable synthetic rubber balloons, with their miles of steel cables, standing guard against attack by enemy bombers.

All over the world, wherever our fighting men go, Mathieson Chemicals in one form or another go with them —not only in barrage balloons, but in ships, planes, tanks, guns, gasoline and lubricants, clothing, food, medical and sanitation supplies. For Mathieson chemicals—chlorine, caustic soda, soda ash, ammonia and other Mathieson products—are vital raw materials in nearly every phase of American war production.

Today, while it goes without saying that "the needs of our Armed Forces come first," Mathieson is exerting every effort to supply materials for civilian needs as well. Tomorrow, when final victory has been won, Mathieson will again stand ready to render its normal peace-time service to American industry.

Mathieson CHEMICALS

ARMY NAVY

THE MATHIESON ALKALI WORKS (Inc.) 60 EAST 42nd STREET, NEW YORK, N. Y.

LIQUID CHLORINE . . . SODA ASH . . . CAUSTIC SODA . . . BICARBONATE OF SODA . . . BLEACHING POWDER . . . HTH PRODUCTS . . . AMMONIA, ANHYDROUS and AQUA . . . FUSED ALKALI PRODUCTS . . . SYNTHETIC SALT CAKE . . . DRY ICE . . . CARBONIC GAS . . . SODIUM CHLORITE PRODUCTS . . . SODIUM METHYLATE

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Textile World

SEPTEMBER, 1943 • VOLUME 93 • NUMBER 9

A McGRAW-HILL PUBLICATION

TEXTILE WORLD (formerly *Textile World Journal*) with which are combined *Textiles, Posselt's Textile Journal* and *Textile Advance News*. Published monthly. United States and Possessions and Latin American Republics, $1.50 a year; Canada and all other countries, $2, U. S. currency or 12 shillings. Single copy 25c. Annual Index in "Textile World Yearbook & Catalog."

Of this issue 16,596 copies were printed

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IN THE NEXT

TEXTILES FOR PARACHUTE FABRICS is the title of an outstanding article which will discuss development and manufacture of special rayon and Nylon fabrics used for escape chutes, delivery chutes, cargo chutes, flare chutes, bomb chutes, mine chutes, etc. Other articles having a direct bearing on the role of the textile industry in the war will include Part IX of the Manual of Military Fabrics, manufacturing 20-oz. melton and finishing barathea.

Another feature of the October issue will be the second installment of the series of articles on Styling and Designing Consumer Fabrics for Post-War Markets—this one dealing with qualifications and functions of the designer. Among other technical articles tentatively scheduled for October are: How to Get More Efficient Windings, Making Up the Loom Spinning Book, Preventing Defects in Jacquard Fabrics, More Facts on Infra-Red Drying, and Safe Handling of Chemicals.

Several important meetings during the month will be reported in the October issue. Developments in Washington will be interpreted for the textile industry.

CHANGE OF ADDRESS

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To .....

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Signed .....

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FOR THE TEXTILE INDUSTRY

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Aviation—A Progress Report

The Lessons of War Become the Key to a Richer Peace

TUNISIA, PANTELLERIA, SICILY—stepping stones to momentous events! But that is not all. For they spell out across the blue waters of the Mediterranean a pattern of invasion that has progressed far since last summer's first major Commando operation against the French coast.

From Dieppe, you remember, too many of the raiders never got back. But in Tunisia, and on through Sicily, the Allied might plowed inexorably forward, winning objective after objective at a surprisingly low cost in casualties. Air supremacy over the battlefield? Yes. But we have learned, too, how to save lives and shorten the war by strategic air bombardment as a prelude to invasion.

Thus the bombardment plane—rarely seen by the doughboys on the fighting fronts—is destined to save their lives by hundreds of thousands in the decisive attacks that are to come. This fact is confirmed by the cold calculations of the responsible strategists. It will give renewed courage and confidence to every member of the armed forces and of the home fronts throughout the United Nations.

For instance: thorough strategic bombardment of an objective reduces by nearly fifty per cent the surface forces required for invasion. Anticipated losses are reduced from more than fifty per cent of the original ground force to about twenty per cent. Precision bombardment—as used on railroad objectives in Rome—reduces this percentage of loss still further when it is followed by offensive action on the ground.

This is the fifteenth of a series of editorials appearing monthly in all McGraw-Hill publications, reaching more than one and one-half million readers. They are dedicated to the purpose of telling the part that each industry is playing in the war effort and of informing the public on the magnificent war-production accomplishments of America's industries.

The inference is clear. Effective prosecution of the war will require smaller ground combat forces and much larger air forces than some of our strategists once thought.

Our most urgent need, then, is for ever-mounting fleets of aircraft. And, fortunately, this is just what we are getting. The American aircraft industry now is producing as many airplanes as all the rest of the world combined. In 1938 we made 100 planes a month. Now we make three times that many in a single working day. By the end of 1943, our production rate will be about 10,000 a month.

But at this stage of the war, types of planes are more important than mere numbers. In the early months the program was heavy, and properly so, with single-engine trainers. Then, as training planes accumulated, the emphasis shifted to heavier types. Now we are turning out multi-engined bombers at a rate that is the envy of the entire world. Some months ago the President revealed that we were manufacturing 500 long-range bombers every month. The figure was conservative even then. And soon we shall be producing planes of this one type at a rate adequate to replace the normal losses of a fleet of at least 1000 American heavy bombers operating as continuously as the weather will permit.

A glimpse of the poundage production may help us still further to evaluate the miraculous achievements of the aviation industry as a whole. It was 89,000,000 in 1941 . . . 291,000,000 in 1942 . . . 911,000,000 in 1943 . . . and 1,417,000,000 in 1944

– if we need it. There you have the magnificent record of the American aircraft manufacturing industry – a monument to the cooperation of industry, labor, government, and to all-out teamwork between the aviation industry and those other industries which have converted their facilities to the manufacture of airplanes.

What of our enemies and our Allies?

German production probably has flattened out at 2500 a month – with downward revision in immediate prospect. Japan may be able to produce as many as 1000 planes a month – until we get our new long-range super-bombers in sufficient numbers to whittle down that figure. Italy may be able to turn out her 500 a month – for a little longer. At best the maximum Axis monthly total is 4000.

Add to our monthly score of nearly 8000, a total of approximately 4000 for Britain, Canada and Russia, and the United Nations score comes to 12,000 monthly. There we have a three to one advantage for our side. And between our own rising production and the brilliant operations of our bomber commands we should soon boost the ratio well above that figure. Therein lies the certainty of continued and growing air superiority over all the far-flung battlefields.

The critics of American airplane quality have been silenced ever since the ratio of enemy combat losses to our own on bombardment missions surpassed four to one. In the Pacific where our heavily armed and armored planes are knocking off the desperately stripped racing craft of the Nipponese, enemy losses often run as high as eight to one or more. In the Mediterranean theater, where the Italians were abandoned by their Allies, the story is much the same. Only in the well-defended homeland of the Nazis do we sometimes drop below the average, but even in those rare instances the ratio is still well in our favor and the effectiveness of our bombardment is adding constantly to our margin.

* * *

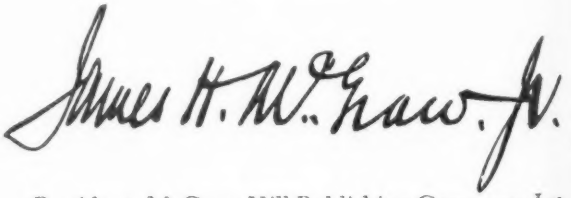
Behind the production lines the battle of research and design still rages. In many a laboratory night-shift, on many a secret test field, new and terrible surprises for the enemy are in the making. Superbombers, destined for Tokyo, have long since passed out of the design stage and the Japanese may learn about them almost any day. New discoveries, designed to sow swift and silent devastation, are farther along than our enemies believe. No longer will fog or storm or night be permitted to fight on the side of our foes.

The men of science who are toiling to broaden the horizon of our knowledge stand today on the threshold of discoveries that have been sought for centuries. New reservoirs of power may soon exert a profound influence in many fields of technology and through them on our way of life.

Once the war is won these new discoveries will be translated into better living. No longer will countless thousands spend their lives within their own communities or countries. New efficiencies in transportation will bring world travel within the reach of many who once had to stay at home. New family vehicles will navigate the skyways as easily and safely as the highways. Already more than a dozen manufacturers of airplanes, ships, automobiles, and electrical equipment are designing, building, or flying rotary-winged aircraft such as the helicopter or autogyro to meet the needs of tomorrow's families. New and safer aircraft of the fixed-wing type are ready for production as soon as materials become available.

The quality that now makes each of our war planes worth so many of those built by our enemies will be translated into the sturdy reliability demanded by peacetime operation. The devices that seek out and find our enemies behind the veil of fog or darkness will, after the war, reduce weather hazards to the point where they will be no greater in the air than on the ground.

Science and industry will continue to do their jobs and do them well. But if the world is to be made a better place for men to live in, statesmanship must not fail to do its part.



President, McGraw-Hill Publishing Company, Inc.

Textile World

DOUGLAS G. WOOLF, EDITOR

THE DAY Has Arrived

THE LONG-ANTICIPATED MOMENT has arrived. The Army no longer wants all the textiles it can possibly get—and no longer wants them the day before yesterday. It has stated bluntly that 1944 purchases of military fabrics will approximate 50% of the 1943 purchases.

That is a helpful type of statement. It enables the industry to start some over-all planning for 1944. Obviously, the percentage, too, is an over-all one. There undoubtedly will be types of textiles of which the Army will require 100% production for the duration. There will be others, the demand for which may fall well below 50% of the 1943 level. But at least, we have something to shoot at.

The first reaction to this announcement, among textile manufacturers, is one of relief. It means that it will now be possible to supply long pent-up civilian demands: to return in part to the servicing of regular customers. As lavish a buyer as the Army has been, it is still not in the class of a regular customer, over the years.

But there is a secondary reaction: a question-mark. *Is* there a continuing market for all the output of all the textile mills operating at the all-time record level prevailing during the last four years?

OUR BLUNT ANSWER is NO. It isn't in the cards. That is, there isn't unless the textile industry starts to do something about it now.

The time to think about the problems of a buyer's market is when the seller's market is still with us. Too often—in fact, always—the textile industry has over-stayed the transition point between a seller's and a buyer's market, and has suddenly found itself all dressed up with no place to go. The latest example was in 1937.

Maybe this time we can make history by reversing the procedure.

And how?

Well, in the first place, let's realize that the accumulated civilian appetite for apparel and household textiles is not inexhaustible. In the second place, let's realize that an inevitably increasing tax burden will bite a sizeable hole out of the statistical pie-chart of the average family's budget. In the third place, let's realize that textiles are not the only desire of civilians; refrigerators, ranges, cars (and what have you) have been off the market for almost two years while textiles have been in reasonably plentiful supply. In the fourth place, let's realize that many industries have been encroaching upon textile markets; the paper industry is an outstanding example. In the fifth place, let's realize that Lend-Lease, promising though it looks at the moment, is no more a regular customer for the textile industry than is the Army.

WITH THAT REALISM as a starting point, let's get back to the hard cold fact that the only way the textile industry can dispose of its products is by the hard way. *It has to get out and sell.* That has been the greatest lack in textile-mill operation during our 27 years' identification with TEXTILE WORLD, and during the decades prior to our entrance on the scene, judging from what we have been able to put together as a pattern.

But getting out and selling doesn't mean ringing doorbells. It means research: fundamental research, which will enable the industry to go from here to there in a straight line; applied research, which will enable the industry to utilize the results of fundamental research; product research, which will enable the industry to produce things that people want, at a price they are willing to pay; economic research, which will enable the industry to forecast the future in terms of past experience and of present trends.

There is no magic about this. It is hard, cold science. But it is warm, too—warm in its promise of ample return to the individuals and companies and groups which are alert enough to utilize new facts, new conditions, new fibers, new materials.

THE ARMY is passing out as a textile customer. Lend-Lease will pass out eventually, we hope, we hope, we hope. That leaves our regular customers—past, present, and future.

The day has now arrived when we had better think about them.

Douglas G. Woolf

THE EDITOR SAYS

United for Humanity

Ever since the beginning of World War II, and right on through our own Hell-Day—Pearl Harbor, to the present moment, most Americans have been puzzled as to how best to contribute to the relief of a world scourged by two master fiends—Hitler and Hirohito—and by a comic-opera fiend, Mussolini.

The need of each group whose campaign came to one's attention, and the justice of its call upon one's inelastic pocketbook, made it difficult to decide just how to allocate available funds to the best advantage of the world as a whole. Consequently, we Americans did it the unscientific way: by contributing to causes to which we were linked by heritage, by friendship, or by incidental exposure to campaign leaders.

The result was not equitable. Some causes got more than they needed; others got less. More than that, many Americans—out of bewilderment—merely didn't give to any cause.

There is now a scientific channel for contributions to the cause of suffering humanity. The National War Fund, representing 16 privately supported national agencies which work with our own forces and with the armies and peoples of the United Nations, will present the needs of those groups to the American public this fall in a campaign for $125,000,000. That sounds like a lot of money. Actually, it is peanuts as compared with the need of the individuals concerned. Our own reaction is one of surprise at the modest sum the National War Fund has set as its goal. If $125,000,000 were divided among those 16 agencies, including USO, United Seamen's Service, War Prisoners Aid, United Nations Relief (comprising 11 different agencies), and Refugee Relief (comprising two agencies), the per capita amount would be so small as to be negligible. We hope the fund will be over-subscribed several times.

So when some one rings your doorbell between Oct. 1 and Dec. 7 (the second anniversary of Pearl Harbor), dig into your socks and pull out far more than your quota. More than that, be a volunteer worker; get your neighbor and your neighbor's friend to oversubscribe their quotas. Remember that this is not charity. It is merely allocating the surplus dollars which we as a free people are privileged to accumulate, to those in our own forces and in the armies of our allies, and to the peoples of the United Nations—all of whom are temporarily bereft of freedom.

Our response to this fund will hasten the day when humanity will again be a common right, and no longer a foot-ball for blood-thirsty dictators.

Purge in Reverse

To those of us who felt some encouragement over the purge of the little doctors—Galbraith, Hamm, Ginsberg, et al—from OPA, the news that Galbraith reappears on the scene as a member of the staff of the Lend-Lease Administration wipes out most of that encouragement.

Lend-Lease is, and will continue increasingly to be, the most delicate operation in all our complex Federal administration. It can be a savior of countless American lives, through judicious handling. On the other hand, it can become an international WPA. The association of men like Galbraith with Lend-Lease threatens the latter possibility.

More than that, the attempted purge of textile men, who know the facts of life, from OPA means that the New Deal in that stupid outfit is merely a clever shuffling of the cards whereby the good men nearly lose their jobs and the bad men get jobs where they can do even more harm than before.

Someday, when the history of this war on the home-front is written, it will be proved that the greatest loss of morale was due to the stupidity of OPA direction. Of all the agencies we have contacted in Washington—and we have contacted a lot in our 27 years of contacting—the OPA holds an all-time record for arrogance, stupidity, inefficiency, and what have you.

Textile Activity Slightly Off

TEXTILE WORLD's index of textile mill activity for the first seven months of 1943 was 2.3% lower than that for the corresponding period of 1942.

The drop is still small, but indications point to further decline during the balance of the year, due to the cotton factor in the index solely. Cotton consumption has been steadily falling off and in July amounted to only 839,705 bales against consumption of 994,552 bales in July 1942, a drop of approximately 15%. If this decline should continue or be intensified during the balance of the year, a much more pronounced drop in TEXTILE WORLD's index for the calendar year 1943 than that recorded for the first seven months, will result.

These facts should be taken into consideration in connection with the story from Washington on the outlook for textile production (page 90 of this issue) and with the editorial on page 77.

"Preparing for a Rainy Day"

NEW YORK, N. Y.

Editor, TEXTILE WORLD:

I read with much interest your article in the TEXTILE WORLD entitled "Preparing for a Rainy Day," and I want to congratulate you upon the article and the sound thoughts which prompted its writing.

I have sent a copy of it to a friend of mine who is very interested in tax legislation, and I have asked him to expound the idea with the Treasury Department.

The relief which you suggest is so sorely needed that I think it would be a good idea if every Congressman and Senator would read your article.

MELVYN G. LOWENSTEIN
Wellman, Smith, Lowenstein & Fennelly

New Ideas

"Ideas are a tremendously powerful force in business . . . E. L. Bernays, noted authority on influencing mass thinking, stated recently that the time lag in getting a new idea adopted is something like eighty years in the woolen industry and three years in aviation. People are often much the same way. Some are hungry for new ideas; others fight against them . . . What every business needs is a deeper and more thoughtful penetration of existing ideas."—*American Business.*

PART ONE

Place and Functions of the Stylist

By THOMAS O. OTT, Jr.
Southern Editor, TEXTILE WORLD

The following is the first of a series of articles on the subect of Styling and Designing Consumer Fabrics for Post-War Markets. It outlines briefly the changes needed in manufacturing and selling organizations before a company enters the consumer fabric field and then discusses in detail the place and functions of the stylist. The second article in the series will take up the general principles involved in designing consumer fabrics, and subsequent articles will deal with the designing of specific types of fabrics.

IN THEIR POST-WAR PLANNING, the top-executives of many textile mills are giving primary consideration to the problem of increasing production and sales. Some companies now producing industrial fabrics are exploring the possibility of converting part of their facilities to consumer fabrics. Others now producing staple types of consumer fabrics are giving thought to the more highly styled fabrics. Textile manufacturers entering the consumer field or changing from staple fabrics to highly styled materials face many problems—that of styling and designing being one of the most important.

By "consumer fabrics" are meant any fabrics made for the use of the general public. These may be staple fabrics or highly styled fabrics. They range from simple, plain-woven dress materials to intricate jacquard upholstery materials. "Styling" means the creating of pleasing construction, pattern, color, or finish effects—or a combination of these—that add sales appeal to the fabrics. If a mill decides to make something besides osnaburg bagging, canvas, duck, etc., or the ordinary twills, drills, and sheetings, the question of styling will arise—even sheets, pillow cases, and kitchen towels require some styling.

MARKET SURVEYS should precede all planning for consumer fabrics. Included in such surveys are thorough studies of the size or volume of the market, the geographical distribution, the number of competitors and their relative strength, and methods of handling, marketing and distribution. A most important question to answer from survey is: Will the additional competition disrupt the price structure and make the market less profitable? There is much information to be secured in a market survey that can save costly experimentation. To obtain evidence that can help in deciding on a suitable line, often several surveys are made in different fabric fields.

Deciding on the product to be made is the next important step. Perhaps, surveys of upholstery, drapery, and towel markets have been made, and in such instances the management has the benefit of comparisons. The decisions made at this point largely determine the soundness of the new venture and form the basis for general policies in the future. Executives may decide to make a product requiring a minimum of change in fibers, yarns, or materials, or on the other extreme may erect an entirely new plant to make the new product and build a complete new organization. Many mills will make changes between these two extremes.

Organization for manufacture and marketing of styled fabrics of cotton, filament, or spun rayon, wool, mohair or mixed fibers depends upon the plant, machinery, and personnel of the company. Most mills prefer to use all existing plant and equipment and add or change personnel only where specialized experience is necessary.

Sales organizations are probably the most flexible; and the addition of a stylist to manage the creation and introduction of the new line may furnish the "know how" needed by the regular salesmen. The market surveys previously mentioned can serve as a basis for salesman's training. New markets, however, mean that salesmen must adapt themselves to a different type of customer and use selling methods effective for the new field.

Manufacturing organizational changes are often more radical because of new machinery and new techniques required by the new product. Addition of new departments, such as a dyehouse or finishing department, and changes in looms often require the hiring of outside men skilled in the new techniques. Plants that are changed radically may require

a new superintendent or assistant superintendent. A designer and a sample manufacturing organization are often required to produce the ideas sent to the mill by the stylist. A typical organization chart showing lines of authority and communication, Chart I. is for a medium-sized company. It can be modified to suit individual companies. In some instances a designer is retained at the sales headquarters to assist the stylist, whereas other mills have found it preferable to keep a designer at the mill to translate the sylist's ideas into samples and even to supervise sample production. Other companies prefer to keep all styling and designing at the sales headquarters, and to keep all sample manufacture at the plant. This organization is shown in Chart II. It is the type of organization most widely favored.

A STYLIST must be able to create fabrics which are marketable and profitable. He must keep well posted on textile and market trends. To be a stylist, a person must possess certain qualifications that can be developed by training and experience, and other qualifications which are a part of inherent capacity. Training and experience can supply a knowledge of markets, yarns, constructions, and weaves, while good taste or discrimination in selecting yarn, weave, and color combinations are dependent upon the inherent capacity of the individual, in addition to training. There is no restriction as to sex, as both men and women are engaged as stylists.

Stylists may be developed from salesmen, designers working in sales offices or at the mill that have acquired some sales or market experience, or they can come from purchasing departments of large fabric brokers, converters, mail order houses, or department stores. There is no royal road to becoming a stylist, and no two develop alike. Someone has to understand the requirements of a good stylist, and see that the one person best qualified is selected and given the freedom to develop. High salaries, comparable with salaries of top sales executives, are paid to stylists of recognized ability.

The sales manager that has completed all the preliminary market studies and is ready to select a stylist for the line to be produced must remember that the success of a new line depends largely upon the ability of the person selected. In a few instances, effective and versatile stylists are already working on other lines in the same sales office, and these can take up the new line if given assistance.

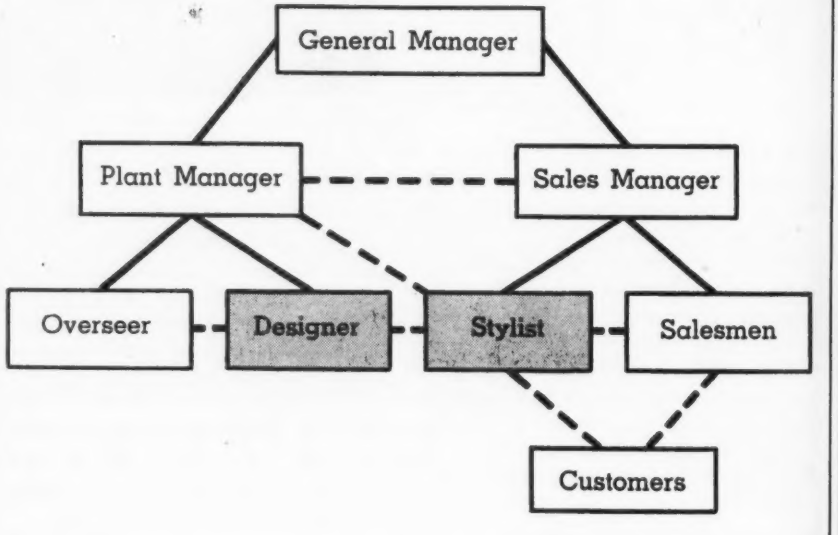
Selecting a stylist from outside the organization demands extreme care. The person chosen should have a successful background of styling, designing, purchasing or selling in the line to be developed—preferably several years' styling experience. In the final analysis, styling means producing something outstandingly different that has sales appeal greater than that of competitors' products; and to do this, the stylist should have artistic tendencies and abilities, as well as practical sales knowledge. The stylist should be broadly versed in competitive market information, and be able to produce a line that will sell. If he cannot create a complete line, and instruct salesmen how to sell it, there is a good chance that the new fabrics will never get over, no matter how beautiful or unusual the patterns, colors, and yarns may be. In this respect, the stylist is an assistant sales manager. This means that he must win the confidence of salesmen and higher sales executives, and they must depend on him for guidance. Should this confidence and respect not be present, a stylist's real function of style leadership cannot be realized.

If such a combination of abilities cannot be found in one person, a salesman of the type of consumer goods to be styled can be made an assistant sales manager and a designer experienced in the same consumer fabrics secured to supplement the assistant salesmanager's special abilities. It is important that the styling organization be settled and explained to both salesmen and plant executives before a job of styling is started. Should the styling organization be defective and the first line prove a failure, the chances of getting into the new field may be seriously jeopardized, especially if the new line has been put on the market. Even a good stylist may not put over a new line in one season, as he needs to break into the market gradually in order to build good will, and gain a reputation of success for the line.

A stylist must be able to work with others. He should visit the mill and talk over his plans with all concerned about the new products contemplated, or he may be blocked at many points. He must know the attitudes of these associate workers, or he may find that his pet ideas are ruthlessly handled when cost and production problems are up for discussion. To be able to sell manufacturing personnel on his abilities, the stylist must know production methods and problems well enough to be able to come to an agreement with the mill executives on the product to be made. After all, the fabric as conceived and as finally sold is generally a result of a series of compromises between market demands and productive limitations. The stylist must confer with the superintendent, designers, cost accountants, and technical personnel constantly while developing a new fabric or line, he must be reasonable in

CHART I

Organization chart with stylist located at sales office and designer at the mill.



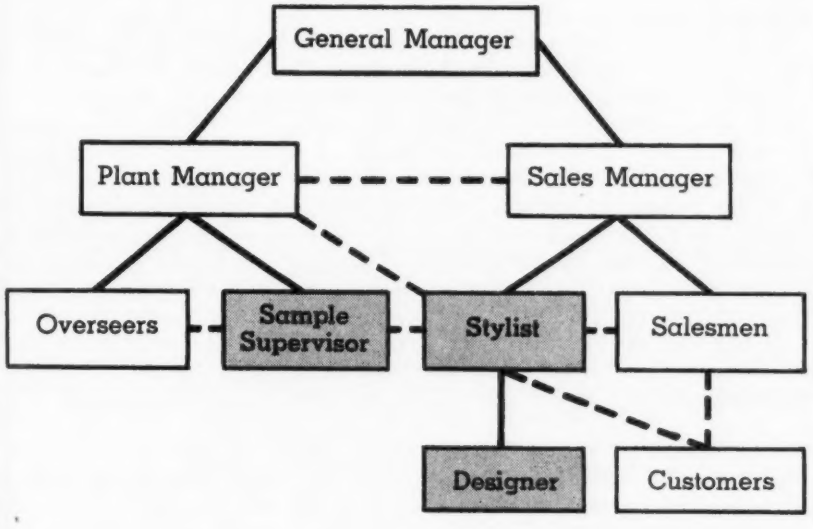
Under this system stylist and designer are at mill.

his plans and requests, and he must endeavor to help the mill executives make a good product cheaply; otherwise the dissatisfaction in the mill over costs, methods, and profits can block him completely.

THE DESIGNER may be located at the mill where he is responsible to the plant manager, as has been indicated in organization in Chart I; or he may be located at the sales office where he is responsible to the stylist as indicated in organization in Chart II. If the designer is located at the mill to intepret the stylist's instructions and conduct the manufacture of samples, he should have practical mill experience, as he comes in direct contact with

CHART II

Organization chart with stylist and designer located at sales office near market.



Stylist and designer located at sales office.

overseers or operatives handling sample orders. One drawback to this system of organization is that friction may develop between the designer at the mill and the stylist, because the designer believes some of the stylist's ideas are impractical. An advantage of the other system, where the designer is located at the sales office, is that the designer does not have to supervise the manufacture of samples and, hence, can spend more time on actual creative or layout work; also, he can become an understudy of the stylist.

Planning the consumer line comes first on the agenda of the stylist. Market requirements that he must consider are price range, volume, constructions, colors, dyes, designs, packaging, inventory and speed of delivery, advertising, and quality, credit and discount, and turnover on capital invested. These factors vary considerably with different types of consumer fabrics. For example, a new dress fabric must fall within a price range consistent with prices of competitive fabrics on the market that are of the same general quality and weight. If the stylist can give added eye-appeal through design and color or better hand and quality, then the fabric should sell. However, as a general rule the fabric must first be made to fit a price bracket, although this is not always true—particularly with highly styled lines. To accomplish this, the stylist can vary constructions and colors. He often finds that a fabric with unusual quality and eye-appeal can be placed in a higher-priced bracket; however, he must balance this with the consideration for the possible volume of a number at a lower price. The stylist is going to make color and design as pleasing as possible within the limits of the materials and equipment available. He may use colors and designs that depart radically from those now on the market. Occasionally he must specify the type of put-up and packaging for the new line and, in some instances, design the packaging. Usually he requests a stock on each fabric so as to secure speedy delivery of orders, and uses controlled minimum and maximum inventory to keep stocks of colors and patterns on hand for quick delivery without overstocking. He should plan advertising, and place it with media serving the buyers and consumers. Credit and discount practices should be settled by the stylist with the credit department. Capital tied up in finished goods and the turnover of patterns are important factors in profitable operation, and, for this reason, the stylist must watch this from the start, or he may have to dispose of overruns at a loss.

SOURCES OF DESIGN IDEAS are practically unlimited. Styled fabrics have a way of developing in cycles, and when fabrics are watched for a period of years, this can be noticed, although the cycle is more pronounced in some lines of goods than others. A stylist usually makes a survey of fabric constructions in current vogue on the market, and then steps out boldly to change, create, and develop until he has a fabric to displace a good number already out. He seeks ideas from other fabric fields that can be adapted to his line; makes sketches of fabrics in museums and in books of designs; visits department stores and style shows; adapts designs from architecture or mechanical goods; and assembles designs on paper from his own knowledge of the principles of design, color, form, and use of the product. In addition, he can buy swatches of foreign fabrics from swatch service agencies, or have designers originate patterns and combine colors.

Styling and promotional information frequently can be secured from the Cotton-Textile Institute, the Durene Association of America, and various other textile associations. Several such groups maintain staffs of stylists and designers who give their full time to improving styles and constructions for their members. Again, many rayon yarn producers maintain styling organizations in their New York offices to promote the use of products, and much valuable information can be secured from these companies on styling of rayon fabrics.

Color selections are principally a job for the stylist. He is always looking for colors and combinations of colors that can produce eye-appeal in a fabric. In selecting his colors, he is guided by consumer demands for certain colors on the market, but this will not keep him from adding a new color of his own or improving those already accepted. In styled goods, consumers are always looking for new colors, as well as new designs and constructions. If a stylist follows accepted colors too closely, his line may not be outstanding; on the

other hand, a departure from consumer demands for certain colors may be even more disastrous.

The stylist must decide on the quality and type of dyes to be used to obtain the effects. In certain price ranges, the cost of dyes with the best fastness properties may be prohibitive. In such cases he may be able to use one class of dyes for one range of fabrics, and another class for another range. He should also consider the effect of the number and type of colors on manufacturing and hold his color selection within limits. New shades can be secured from fabrics in the same or allied fields, and from color charts of dyes manufacturers or color card associations. By judicious selection and combination, the stylist often can secure many good color effects from a few standard basic colors already used in the mill for other fabrics.

SELECTION OF FABRIC CONSTRUCTIONS by the stylist must be tempered by a knowledge of the spinning and weaving facilities available at the mill for the line of fabrics; however, in this selection, the stylist should meet market requirements first and then modify the constructions when the samples are made. The fewer basic constructions he selects, the better it is for the mill, since the market may require that a salesman show a wide variety of constructions. Yarns and twists must be selected to meet the requirements of constructions and hand of the fabric. In some highly styled lines, the range of selections is wide. The fewer yarns and twists required for a given range of constructions, the simpler the job is for the mill. Frequently, yarns and twists may be selected from standard yarns now in production, but in some instances new yarns and twists must be added.

Mill executives and stylists must study the proposed fabrics for the purpose of fitting the new numbers into the production picture. The stylist should have the designer work out tentative fabric and yarn specifications, and take them to the mill men for consideration. He can then modify his requirements to meet their suggestions.

When all factors have been considered, the stylist should review the costs of the modified samples and see that they will fit into his plan. It is much better that he consider these factors early in the game, rather than to drop numbers, and cancel orders later on unprofitable numbers or constructions. Practical knowledge of the mill can assist the stylist here. Mutual respect and consideration are important in working out these problems and have everything to do with the success of a new line. After these relations are established between the stylist and the operating personnel, fabric additions can be made from season to season without special conference.

KEEPING A BALANCED LINE is a major responsibility of the stylist. He must first keep patterns and constructions at an absolute minimum in order not to complicate manufacturing and deliveries. Some numbers will not go over at the start, and these he should drop from the line as quickly as possible with due consideration for the effect on those customers who have already bought. By conferring with these customers, he may discover that these numbers can be dropped; although he may find it to be necessary to carry some numbers for an agreed period. He should reduce inventories and stop production as soon as a number is considered slow, and add new numbers seasonly to spruce up the line. Customers like to see something new each season, or the salesmen aren't so welcome.

Gradual building up of the line over a period of several seasons gives the stylist a chance to build a well-rounded line. By starting with one or two numbers in each price range or fabric type and each season adding to the ranges that show promising sales, the stylist can develop a better line and encounter fewer disappointments. The limiting factor to the number of patterns and colors in a line is the number of sample swatches a salesman can carry and show. In normal times, when salesmen travel by car, the practical limit is two cases of standard samples. Customers often show impatience at being shown too many samples.

INVENTORY CONTROLS should be developed so that the stylist has a perpetual and up-to-date record of all fabrics on hand, on order, and in production. He should always put in the stop orders on fabrics, and these should be checked in the mill to see if raw stock or yarns can be transferred to other fabrics. If not, once the order is dyed up and in production, it is his responsibility to take it in stock and sell it. This acts as a check on the stylist, and he will usually be careful not to overstock a fabric.

Sampling to the trade must be done just previous to seasonal market showings. The method varies, of course, with the line in question, and full preparation must be made to supply samples to salesmen, and sample rolls to jobbers and manufacturer well in advance of seasonal showings.

Retailers should not be shown samples of new lines at the time the jobber and manufacturer see them, as they must be depended upon to buy out stocks of old numbers and they will not do this if they see a new line. The time for the retailer or small buyer to see a new line is at regular market showings, which gives the jobbers time to prepare their lines from the new offerings and allows ample time for old stocks of fabrics to be reduced. If several lines are being handled by one stylist, it would be well to schedule the beginning and closing dates for styling, designing, sample manufacture, and sampling to customers, so all lines will then receive proper attention.

As fast as samples are sent from the mill, the stylist should decide on their place in the line, get final cost figures, and order yardage for salesmen's samples. If he is sure of a place for a number, he can have sufficient yardage made up by the mill at the time the first sample is run. If he is still uncertain about the number, he should make as little yardage as possible, such as strike-offs and head-ends, and make his decision from them. Then a sample order can be placed. Samples and rolls for customers must be figured on, and it is customary in some lines to put in an order for these when the sample is ordered. This should be done 6 to 8 weeks before they will be needed.

A stylist should have full responsibility as to sales price and estimated margins of profit. He cannot be responsible for inefficient manufacturing, and if he has worked out his problems as outlined, he can let the operating personnel bear that responsibility. To be safe, a stylist must be sure all cost factors have been considered in the final price of the fabric and that the agreed-upon margin of profit is figured in before the price is fixed. If he reduces the profit margin for sales or market considerations, he is entirely responsible—and not the mill—for the lack of profit. For these reasons and to be sure that he is backed up in case of a comeback from the financial executives, the stylist should review his cost sheets and profit margins with the sales manager.

* * *

The qualifications and functions of the designer will be discussed in the next installment of this series of articles on styling and designing consumer fabrics for post-war markets. In addition, practical suggestions will be given on effective procedures for handling design ideas, point paper work, and technical data. Other important phases of the designer's duties which will be considered are the drawing up of specifications for sample fabrics, preparation of working drafts for samples, and the setting up of a master file on new fabrics put into production.—*Editor.*

When Army Cancels Its Contracts

Procedures aimed to protect financial interests of contractors are outlined

By COL. THOMAS W. JONES
Quartermaster Corps, U. S. A.

Procedures to be followed in the cancellation of Army contracts "for the convenience of the Government" were outlined by Col. Thomas W. Jones, Director of Procurement, Philade'phia QM Depot in his address before the War Production Clinic of the Southern Garment Manufacturers Association at Memphis, Tenn., Aug. 19. Significant portions of this address follow:

IN THE LAST FEW MONTHS I have probably heard more discussion of the contract clause providing for the termination of a contract for the convenience of the Government than of any other part. We have given much thought to the effect of this clause upon the procurement program, and upon our contracts. It provides in essence that in the event of termination for the convenience of the Government, the contractor will be paid a sum in settlement which is agreed by the contractor and the contracting officer to be fair and equitable under all circumstances. I believe that you will all agree that the contracting officers whom we have in Philadelphia are fair and reasonable men. However the clause further provides that if the contracting officer and the contractor fail to agree within 90 days, the contractor will be paid a sum which is to be computed by formula.

This formula is simple. It provides for payment to the contractor of compensation for all his costs and materials with respect to the uncompleted portion, and an amount for anticipated profits. The amount of anticipated profits which will be allowed is not the sum total of all that would have been realized had the contract reached completion, but it is the amount which is the same percentage of the entire profit on the uncompleted portion as the percentage of completion of that portion which the contractor has obtained. Determination of the percentage of completion of the uncompleted portion is established by the estimate of the contracting officer. A great deal of power has been placed in the hands of the contracting officer in order that the settlement may be reached as quickly as possible, and that the claims arising out of termination for convenience of the Government may not be dragged on for months and years. There is no reason why, in a termination for convenience, the contractor should be hurt, if he will approach the problem of presenting his claim promptly in as fair and equitable amount as he can; realizing that any attempt to pad out will only result in delay.

At the present time the Philadelphia Depot's method of settling terminated contracts is to:

1. Obtain from the contractor an expression of his willingness to settle by negotiation rather than by formula.

2. Obtain from the contractor an inventory of materials, cut parts, etc. on hand, and negotiate with the contractor to arrive at a disposition of these materials. In general, it is desired that the contractor should keep or dispose of all materials, as in general he will obtain a greater value for them than it is possible for the Government to obtain. However, in some cases it is necessary for the Government to take physical possession of such materials.

3. Obtain from the contractor an itemized statement of his costs and his proposal for settlement.

4. Examine, with a view to determining the allowable items of cost, which generally requires an audit of the contractor's records.

5. Estimate the amount of anticipated profit that should be allowed which, as has been previously mentioned, is dependent upon the estimate of the percentage of completion of the uncompleted portion.

6. After the above things have been done, an agreement of settlement is drawn up and the contractor's approval of this agreement obtained.

Col. Thomas W. Jones, Director of Procurement, Phila. QM Depot

THE CLAUSE "Termination for the convenience of the Government" does not specifically provide for dealing with sub-contractors and suppliers. Although the contract recognizes only the existence of the prime contractor, it does, however, provide for the placing of a part of the settlement payment in escrow account to issue re-payment to the subcontractor or supplier by the prime contractor. The subcontractor, however, must look to the prime contractor for just and equitable treatment. When a contract is terminated for the convenience of the Government, the prime contractor should immediately notify all of his subcontractors and material suppliers, inviting them to submit their claims for cost of materials and expenditures. These claims may then be submited by the prime contractor as a part of his claim, or as a separate item in the final settlement. However, the claim of the prime contractor and all his subcontractors and suppliers must necessarily be consolidated. If there is an injustice done in this type of termination, it will be because a prime contractor has not taken proper and timely steps to protect the interests of subcontractors and suppliers.

In the over-all we expect that change in strategic plans will lead to a shifting of emphasis on items in the procurement program. As research and battle experience accumulate sound factual information as to what is needed by a soldier in the way of clothing, you can expect that the garments the Army buys will become less and less similar to those produced commercially. The job to be done is the thing that counts—the equipment necessary toward that job will more and more be dictated by military advantage.

Control of Neps, Naps and Specks

Investigated—and opening, picking, carding settings given for lowering nep count

By E. H. HELLIWELL

COTTON MEN FROM BROKERS TO CONVERTERS of finished goods have recently shown great interest in the subject of neps. Many inquiries have been made and many points brought up for discussion. An attempt to answer a number of these questions and to further extend the discussion is the purpose of this article.

The U. S. Department of Agriculture fully realizes the importance of the subject and the seriousness of excessive neps and other impurities in raw cotton and in manufactured cotton goods. Technical Publication No. 396 has been issued by the department. This bulletin is a valuable and exhaustive treatise on neps and similar imperfections in cotton.

The term nep is applied to small aggregates of fibers tangled together to a degree that is sufficient to allow the entire knot to be separated from the surrounding fiber mass. In the bulletin tables, where true nep content count is given, no foreign matter is included except the small particles around which the fibers may have been knotted. Many authorities have observed that neps consist largely of thin-walled fibers with occasional mature or thick-walled fibers entangled with them. Thin-walled fibers are usually transparent and ribbonlike. Fuzz fibers occur in various proportions on the seeds of most varieties of cotton and the closeness with which the cotton is ginned influences the number found. These fibers are short and usually very thick-walled and irregularly turned and twisted.

Nap is used to designate the large clumps or motted masses occurring in ginned lint. Portions of compressed fiber masses or fragments from diseased areas occur on the seeds in various sizes and numbers. Many of these are large while some are very indefinite in shape and size, hence it is difficult to make a fairly accurate estimate as to the number. A consideration of these fragments is warranted by the fact that small definite fragments occur in yarn, while carding may rid the lint of most of these fragments, small flakes may be found in sliver, rovings and yarn.

The presence of neps in yarn is properly and appear as light specks on a dark background. Neps are one of several factors that determine the spinning quality of cotton. Their removal is difficult and frequently impossible. Attempts to remove them in the carding and combing processes causes removal of good fiber, thus increasing waste and the cost of the finished yarn. They are partly responsible for end breakage in spinning and the yarn is likely to be weak and irregular.

Neps are apparently first formed in appreciable quantities during ginning and are considered as evidence of bad ginning. The number may be decreased or increased during manufacture. Poor carding actually adds neps. This addition is influenced by settings and condition of the card. Studies made on slivers, rovings and yarns show that still more may be added as they pass through the operations previous to actual spinning, as illustrated.

Certain types of cotton are characterized as being inherently "neppy". It is fairly popular opinion that neps occur in seed cotton, although the authority W. L. Balls states, "Nep does not exist in the living boll, but is made by handling, by ginning and especially by the carding machine from hairs with unduly thin walls, or may be formed even without handling, in the act of drying on the plant in the field."

Neps formed during ginning are described as short, comparatively whole, thin-wall fibers, whereas the artificial neps developed during the manufacture of yarn are made up of fiber fragments. Those produced during the manufacturing of yarn will possess more broken fibers than will the neps occurring in ginned lint, for many of the weak fibers are broken during the carding and drawing processes. Neps in ginned lint are generally larger and more loosely knotted than are the neps in yarn. Yarn neps are described as being smaller, harder and tighter tangles than those occurring in the bale or in the picker lap.

TABLE I—Seed-coat fragments per gram

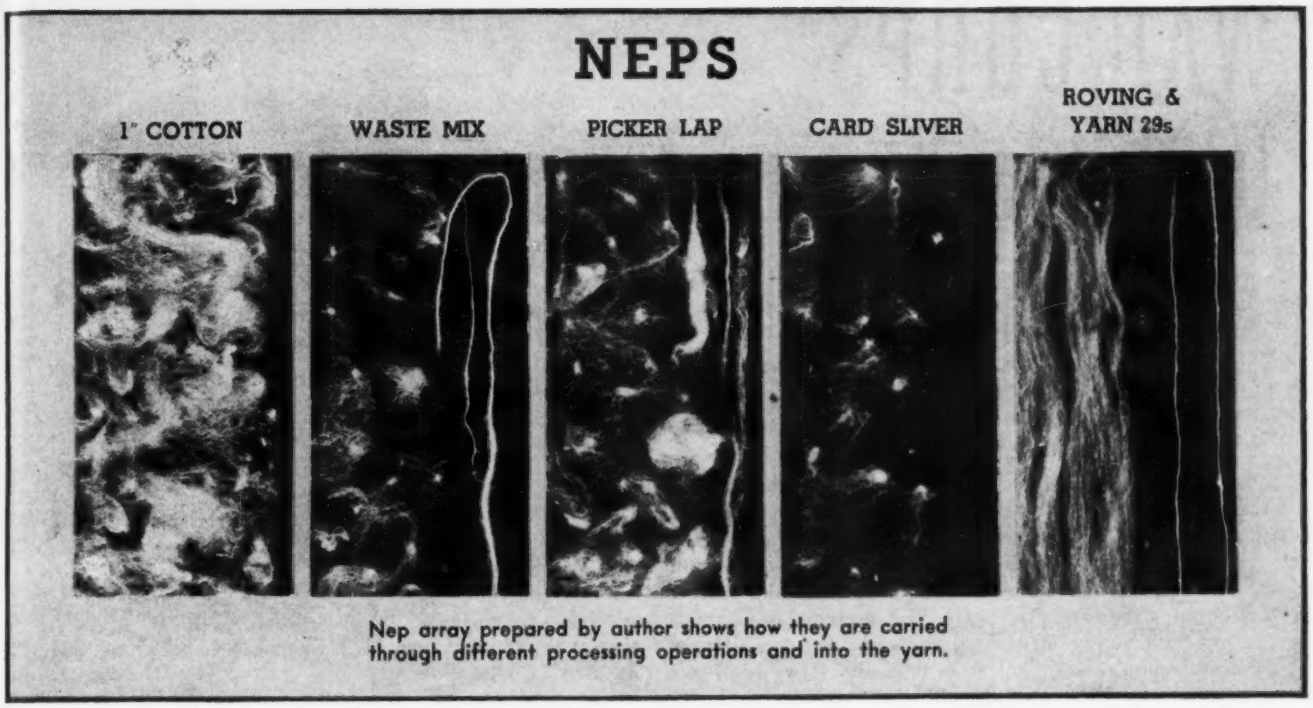
Cotton Type	*Raw Cotton*	*Card Sliver*	*Yarn*
A.....	2.24	8.90	6.85
B.....	7.23	7.71	18.45
C.....	11.15	12.92	41.01

Seed coat fragments, whether large or small, cause trouble for the manufacturer. The small fragments, frequently termed "bearded motes" cling tenaciously to the lint. It has been stated that there is no way of removing motes except, perhaps by combing. Some of the large seed-coat particles and also the crushed motes are entirely removed during carding. Other fragments are further broken up and thus the actual number is increased. That such an increase does occur during the manufacture of yarn is brought out in three typical cases selected from a table in the bulletin. In every instance the yarn possesses more seed-coat fragments per gram than did the raw cotton from which it was spun, as indicated in Table I.

The department of Agriculture bulletin from which the foregoing extracts have been compiled, is considered as one of the most complete and reliable sources of research information available on this subject.

IN ACTUAL MANUFACTURING PRACTICE there is little need to differentiate between types of neps, naps or seed-fragments. The object should be to remove as many as possible and as soon as possible, regardless of type. How this can best be accomplished is more or less controversial. Undoubtedly, the most satisfactory way to obtain the real answer is by trial and experiment and required quality standards. Nep counts taken with various machine speeds, adjustments, settings and processing methods will indicate which arrangement gives the best results in nep removal.

As stated in the bulletin, there are certain types of cotton that are inherently neppy. If these types can be avoided, there will be less neps to be removed and the problem will be simpler. There is a questionable prejudice existing against certain types



Nep array prepared by author shows how they are carried through different processing operations and into the yarn.

of irrigated cotton because of alleged excessive neppiness. Speck counts made on the finished cloth of one mill using this cotton shows an excessive number of specks, while the product of another mill on the same construction and using the same stock satisfies all quality requirements. This is proof that the processing of stock is a large factor in the final number of specks which show in the finished product.

It is evident that these impurities should be removed as early as possible in the processing to prevent the possibility of breaking them. The large leaf and fragments of seed-coat can be removed, in a large part, at the feeders, openers and pickers. Good opening not only removes a part of the impurities but also presents the cotton in such an open condition that subsequent machines have a better opportunity to remove remaining impurities.

Cotton delivered from a vertical opener is often in a stringy and slightly twisted condition. This prevents the following machines from acting effectively on the stringy mass and they do not remove many of the enclosed impurities. This condition may be corrected by closing up the combing roll setting on feeder and increasing lifting apron speed to maintain production. This action will deliver smaller pieces of cotton to the vertical. The speed of the vertical beater may need to be reduced and air currents should be so regulated as to pull stock through the vertical quickly to prevent it from remaining too long under the action of the beater.

True neps with entangled fibers to hold them into the body of the cotton mass, will be found much harder to remove than the motes, seed fragments and leaf. The very small specks of leaf known as pin or pepper trash are very difficult to remove and it will be found that the proper control of picker air currents and adjustments of dampers greatly aid their early removal.

Carding beaters have been blamed as a source of neps and tangled fibers, but many tests show that these beaters with pins in good condition, and run at the correct speed and properly set to feed roll, grid bars and cut-off plate will make no more neps than a blade beater is good condition. Many experienced carders claim that the lap from a carding beater on the finisher picker section presents the lap in a more open condition and permits the licker-in to act more effectively in removing leaf and other impurities.

Dull or bent licker-in teeth will prevent the proper removal of the heavier waste and are blamed for tangled fibers. Laps uneven across the width will cause plucking at the feed roll and prevent the proper separation of seed fragments and leaf from the cotton. Close setting of mote knives will aid in removing the finer impurities. Settings of front and back plates should be checked carefully. It should be remembered that a heavy flat strip does not always indicate an efficient removal of impurities. An analysis of flat strips will often show that a closer setting of front plate is advisable, thus cutting down on percentage of strips without reducing the quality of the sliver.

The setting and condition of flat wire is important. A setting to cylinder of 0.007-in. is often used but a setting closer than 0.010-in. should be avoided on 45-in. cards or any cards on unsteady floors. Variations in the length of flat wire (high and low flats) will often prevent the most efficient setting of flats to cylinder. Dull wire and too heavy grinding with improper setting of doffer to cylinder are the most frequent causes of cloudy webs.

Stripping periods of four hours on cards is the usual procedure in mills on medium counts of yarn. This period is suitable for production up to 10 or 11 lb. per hr. on middling to strict low middling cotton. This time period between strippings should, however, be shortened on higher productions, lower grade stock, or for higher quality of yarn. Neglected or careless stripping and improper setting of stripping brush to card wire will be found to be a common cause of cloudy, neppy webs.

There is apparently no mechanical arrangement in the drawing frame, roving processes or spinning frames that would tend to make or increase in number of neps in the product. But, there are a few factors that increase the foreign matter contained and some of these are mistaken for neps, the results, however, on the cleanliness and appearance of the finished yarn is the same.

Revolving clears on drawing, roving and spinning frames have been condemned by many mill men as a source of a large number of tightly rolled

(*Continued on page* 150)

"WAR CORPS" Utilizes Young Men

Plan in effect at Firth Carpet Co. eases manpower shortage

Placing bands on a box.

THE IDEA OF YOUNG MEN working in mills after school and during summer vacation is not new in industry. However, the Firth Carpet Co. of Firthcliffe, N. Y., has approached its manpower shortage from a new angle. Early in the year, certain young men from the surrounding schools were selected to work in the Firth Mills at Firthcliffe, N. Y., after school from 4 to 6 p. m., and eight hours on Saturday. What is known as the Firth War Corps was established.

A natural leader from the school group, Arthur "Mickey" Meyers, was selected to be the Captain of the Corps. When "Mickey" was hired, he was told all the company rules, regulations, and policies and was further told that the War Corps would be under his direct supervision, for him to solve all problems, answer all requests, and handle all situations which may arise.

The innovation of this Corps was that it was planned as a self-governing group, much like the student body in the high school. It was realized that they were young people with the usual youthful enthusiasm and deviltry to be worked out of their systems. Placing these young men under adult leaders would not solve the problem because they knew they were assigned to temporary work and would be back in school shortly.

Furthermore the boys in the Corps also knew that just as soon as they arrived at the age of 18 they would be eligible for induction into the United States' Armed Forces, which would be another reason for their not being willing to assume responsibility. Placing them on their own was a challenge to their leadership and cooperation.

THE FIRST CAPTAIN "Mickey," who has now graduated into a job which pays him more money, tells the following story:

"I have found the boys in the War Corps to be cooperative and willing workers. However, like all of us young fellows, they have their likes and dislikes for doing certain jobs. One job no one wanted to do was to mow the lawn in front of our main office. I explained to them that this was one of the jobs assigned to us and it was a job we could do just as well as any man in the plant, and if we each took our turn in doing it no one would have to do more than his share. Everybody welcomed this settlement and there were no more kicks about mowing the lawn.

"I have had no problems of horseplay or fooling in the gang when I was in charge. But, realizing that the boys need some fun during the day, I have encouraged them to pitch horseshoes during lunch period, and whenever the weather permits I encourage the group to go for a swim in the creek.

"There has been no problem of absenteeism. Whenever one of the boys wanted a day off he asked for it a few days in advance, and each request which has been found reasonable was granted, provided we could handle our assignments.

"Two of our boys quit while I was Captain. One, after graduating from high school, left to enter college and the other left to work in another plant which was nearer his home. That is the only labor turnover we have had during my assignment to the job.

"My most difficult problem has been to act as leader among a bunch of boys my own age and with whom I have been attending school."

AN ADULT can easily see that there has been some real matured judgment exercised by this Captain of the Corps who has already arrived at the ripe old age of 17.

Boys at work in wool blending.

Corps member assisting in the threading department.

Now let's hear from "Mickey's" successor, "Jim" Rice, who is the present Captain.

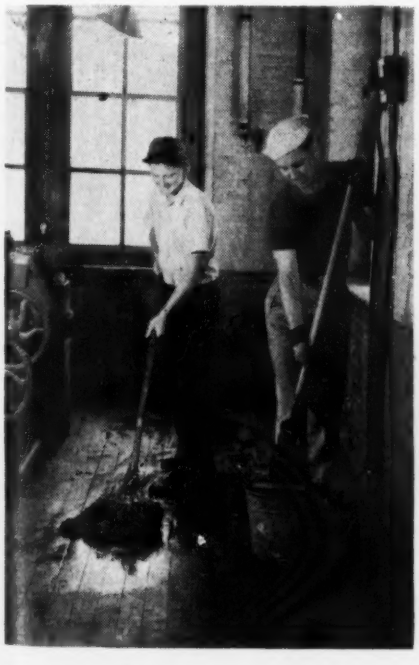
"My chief problem as Captain of the War Corps is in handling boys who are in a higher class in school than I am. They seem to think that they know more than I do and sometimes resent my asking them to do certain jobs. I told them that with so many of the Firth men in the Armed Forces it is up to us to take their place for there is a job here to do and no one but us to do it. I work right along with the boys and don't ask them to do anything I wouldn't do myself.

"I find that the boys get tired of doing one job all day. Washing windows is one of those jobs. So, after one gang has washed windows for half a day I find them another job and replace them with someone who has been doing something else. I get the best cooperation by dividing up the work so that each boy has his share of various jobs.

"Sometimes they fail to do their work as well as they can and I appeal to their patriotism and work with them doing my part of the job in the best possible manner.

"One day I heard one of the boys say that he thought he would slip away and have a smoke. I called his attention to the rules regarding smoking and explained the danger involved. I told him that we were on our own and wouldn't set a very good example. He agreed and there has been no smoking. I have also had the boys keep their cigarettes and matches in their lockers so there is no temptation to smoke while they are working.

"On occasions I have found the gang loafing. This appears to be because they are tired of doing one job and not because they don't care to work. I have found that the rotating of jobs has solved this problem. I have noticed that this is much more pronounced with the new boys in our Corps. Those who have been here a while stick to a job much better."



Two members of War Corps mopping up in one of the operating departments of the mill.

(Left to right) War Corps Captains Arthur "Micky" Meyers, and his successor James "Jim" Rice.

THE FIRTH WAR CORPS is making a commendable reputation for itself at the Firthcliffe plant. When they arrive at work the foreman of the yard department has accumulated a sizable list of work to be done, enumerating the more important jobs which should be done first. These "orders of the day" are picked up by the Captain of the Corps whose duty it is to see that this work is done and done well. The matter of assignment, timing, planning and scheduling of jobs is left entirely up to the Captain.

Some of the jobs assigned to these young men are washing and scrubbing floors, sweeping floors and alleyways, banding boxes, cleaning up the yard, mowing lawns, keeping the Firth Recreation Park ship-shape, washing windows, and others.

However, every once in a while special assistance is needed in departments around the plant. These jobs take the shape of special assistance in the threading department, blending of wools, arranging stock in storeroom, and work of this type. When this work arises the foreman of the department concerned calls the Captain of the War Corps and asks for one or two or as many young men as he believes necessary to complete the job.

This gives the Captain an opportunity to reward young men who have paid particular attention to their business because all of these jobs pay more money than the War Corps rate. The young men take a great deal of pride in the job they are doing, knowing that they are helping out in the war effort and replacing other young men who have gone on to the actual fighting of this war on its many battlefronts. They also realize that they are getting their first training in business and the ratings they achieve now are the beginning of a lifetime record.

The Firth Carpet Co. feels that placing them on their own had a great deal to do with this enviable achievement in labor organization.

Employee-Morale Boosters

Textile Workers "Man" Gun

Over two hundred employees of the Bahan Textile Machinery Co., Greenville, S. C., recently saw a demonstration of a Navy 20 mm. anti-aircraft gun. Mrs. Ray Ayler and Mrs. Norma Hoffman, both inspectors at the Bahan plant, "manned" the gun under the direction of Lt. J. V. Ryan and chief gunner's mates Phelps and Vories. "You fellows and girls are as much a part of the war effort as we are behind the guns," one of them said. "Your job gets tiresome, I know, and so does ours. If you can cut down on your absenteeism and increase your production, we'll do a better job for you out there." The gun was also shown at the Greenville Steel & Foundry Co., Southern Weaving Co., and Union Bleachery.

Improved Feeding for Employees

A system for feeding employees on the job by means of a specially designed container has been devised by Mealpack, Inc., New York. The container brings to the worker the main course, two hot vegetables or salad, and a beverage (hot or cold). The menu for the next day is included and the worker's order goes back with the container to the company's or the caterer's kitchen. A method of locking is provided to prevent tampering. A slip, accompanying each order, goes to the accounting department to be charged against the worker so that no cumbersome cash system need be used.

Veteran Soldiers Bring Message from Front

With 15 months of active service to his credit, Sgt. Bill Hancock today brought a first hand account of his fighting experience to the employees of Young Radiator Co., Racine, Wis. Sgt. Hancock has had more than 300 hours of combat flying over Guadalcanal, China, Burma and the North African front as a radio-gunner in a B17 flying fortress. This veteran gunner was accompanied by Pvt. Arthur Provost and Pvt. Orville Holden. They came to Young Radiator Co. with Capt. Alvin Grauer as representatives of the Under Secretary of War to visit with the men and women in the factory and to impress upon them the importance of their work in the war effort.

Mill Sets up Cannery for Employees

West Point Mfg. Co. has set up a modern cannery at Langdale for use of its employees at Riverdale, Fairfax, Langdale, Shawmut and Lanett, which will can at full capacity 5,000 cans daily, W. L. Gayler, industrial safety inspector of the Department of Industrial Relations, announced.

The company employs a graduate canning expert, an assistant and two janitors, besides furnishing electrical power, equipment and water to can the garden products, meat, and fruits which are furnished by the employees who buy their cans also.

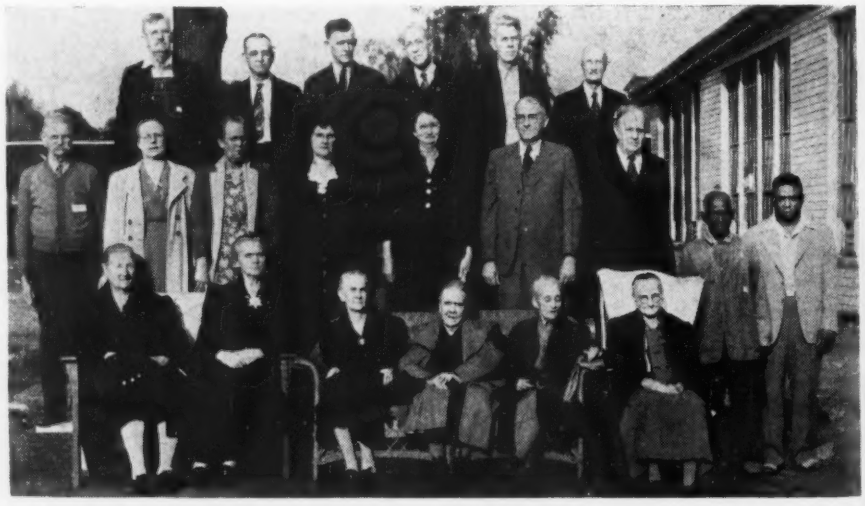
The cannery ties in with the war effort, conserving foods that might otherwise go to waste.

Work Incentive Guide Issued by Navy

Publication of a new booklet, "Ideas That Work to Win," a guide to management for establishing and conducting various incentive measures to stimulate production particularly in Navy contract plants, has been announced by Rear Admiral C. H. Woodward, USN (Ret.), Chief of the Navy Industrial Incentive Division.

Eight Men Do Work of Eleven

Eight men remaining in the carding department of Wright Underwear Co., Cohoes, N. Y., agreed with their overseer to carry on and absorb the extra work when three other men from that department were called into the Service last spring. The overseer, in turn, agreed to split the three men's pay among them so long as production was kept up. The normal complement of workers in this department is eleven and the remaining eight have agreed to remain doubled up until the company can



ANNISTON (Ala.) MFG. CO. a short time ago had a party for the Old Timers in their organization. The 25-year service group includes the following: Front row, left to right: Mrs. Mary Smith, Mrs. Ada Hickok, Mrs. Margaret McKee, Mrs. Mary Denny, Miss Mary Williford, Mrs. Amanda Harrison, all pensioners. Second row, left to right: D. G. Craft, oiler weave room (27 years); Miss Ada Screws, winder hand (43 years); Mrs. Lillie Huddleston, spinner (40 years); Miss Elsie Kimp, weaver (38 years); Mrs. Mattie Schultz, weaver (23 years); W. E. Ervin, superintendent (53 years); F. O. Tyler, president (28 years). Third row, left to right: J. C. Liner, pensioner; F. M. Surrett, card room (25 years); Wm. E. Doss, card room (25 years); W. Goldsworthy, pensioner; J. H. Liner, tying-in man (40 years); C. G. Davidson, pensioner. Colored: George Hill, pensioner; Simon Traylor, uptown janitor (25 years).

find replacements for those who have gone to fight the enemy. Carroll J. Stebbins, head of the carding department, has made every effort to get other men but without result. He feels that the idea of doubling up might aid other plants who are without adequate help.

Bonus Instead of Vacation With Pay

According to an announcement at Greensboro, N. C., workers in the 45 plants of Burlington Mills Corp. will this year receive bonuses based on length of service to the company and attendance records.

Hair-Does for Women War Workers

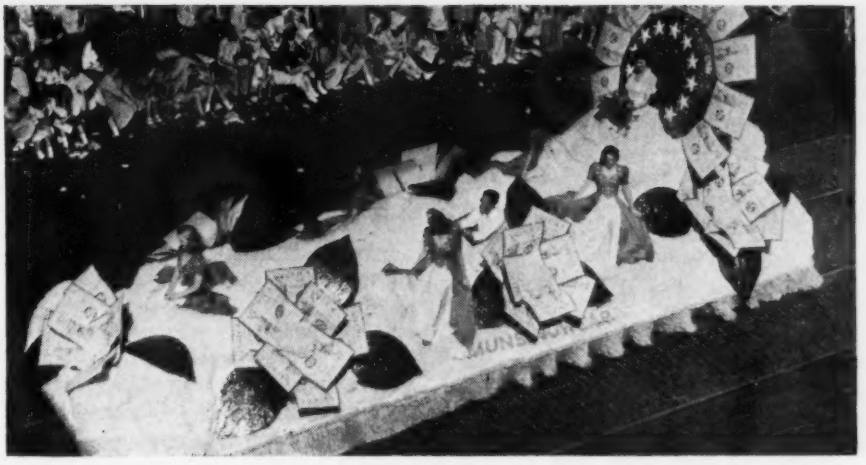
During lunch hour at the Carrier air-conditioning plant in Syracuse, N. Y., Ex-beautician George Crissey shows the women welders the proper coiffure for milady while working on war production. George ought to know because, before becoming an arc welder, he operated his own shop in Syracuse since studying beauty culture in New York twelve years ago.

Overseers Form Club

Piedmont Heights Overseers Club, Inc., with principal office in Burlington, N. C., has been chartered as a non-stock organization "to encourage fellowship and better understanding between all overseers at the Piedmont Heights division of the Burlington Mills." Incorporators: G. G. Miller, W. H. Canhoy and H. L. Ballard, all of Burlington.

Let War Plant Employees Whistle

When the seven dwarfs in the motion picture version of "Snow White" sang "Whistle While You Work," they were giving advice applicable to many workers in war plants today, according to R. L. Cardinell, who has made an investigation of industrial music at Stevens Institute of Technology, and is continuing the work for the Office of Production Research and Development of WPB under the supervision of the Research Corp. of New York. He has just completed preparation of "A Guide to Music in Industry." Workers on assembly lines or engaged in other manual tasks in plants which provide a musical background, should be permitted to hum, sing, or whistle accompaniments, he believes. For this background, select familiar music of dance rhythm, but not overly stimulating; also concert pieces and selections from operettas and ballets, he advices, but avoid military marches, instrumental solos and hot jazz. The music should be only a background and should not attempt to override the noise of the machinery. A maximum of 2½ hours of music scattered through an 8-hour day is sufficient. It is well to focus on periods of greatest fatigue, planning the music in the form of a progressive stimulus. Improvement in production has been noted.



MUNSINGWEAR, INC., entered the above float in the annual Aquatennial Celebration in Minneapolis, the opening gun in the third war bond drive. This float was judged the best-costumed entry. Munsingwear won the greatest number of awards in this patriotic parade.

Sets Pace at 85

Mrs. Belle Norris, an 85-year old great-grandmother, employed by the U. S. Shoe Corp., Cincinnati, Ohio, for the last 17 years has missed only two working days. Her job is to paste stays on shoes for the WACS, and her average production now is 1,000 pairs per working day with no rejections. According to her forelady, many of the younger workers at their plant would do well to follow the example of Mrs. Norris.

Employees Get Credit for Civilian War Work

American Viscose Corp. is currently allowing a maximum of 40 hours per week per plant in payment for the services of employees serving on local draft boards and/or local rationing boards. This is to be paid to employees for time lost when attending official meetings and carrying out their duties in connection with the war effort. Under this plan a single employee, for example, can serve as secretary of a rationing board full time, and the corporation will pay 40 hours per week. On the other hand, two or more employees can serve part time, and the plant concerned is permitted to pay up to a maximum of 40 hours per week for this wartime work.

Kiers for Canning

Beam-dyeing kiers at Pepperell Mfg. Co.'s., Lindale, Ga., unit have been put to work preparing fruits and vegetables for canning. This dyeing department was temporarily out of operation because the plant's Government contracts have been for gray goods. Donald Harvey, manager of the Lindale unit, conceived the application of the kiers, like large pressure cookers, to canning. Other devices in that department are helpful in canning and it is now operating to help the community preserve its fruits and vegetables for future use.

Time Off For Employees to Take Scout Training

M. H. Seigler, executive of the Anderson Cotton Mill, allowed time off for all employees on second shift to attend the training course in fundamentals in scouting which was conducted in Anderson by C. N. Wilson, assistant Scout executive of the Blue Ridge Council. W. G. Stainton, official of the Appleton mills, has assured that he will cooperate, and that a large attendance was to be expected from his mills.

The two-hour course is intended primarily for textile workers, but anyone interested in scouting could attend.

Army Cuts May Not Affect Output

Washington expects civilian use and Lend-Lease to take up slack in textiles

By GLADYS MONTGOMERY
WASHINGTON, D. C.

ARMY'S FINDINGS that it has practically completed the initial equipment of troops and that from now on textile production on that account will be largely on a replacement basis means major changes of production schedules for the industry. The emphasis is definitely on "changes" in production rather than on the quantity of production. Envisioned are more woolen and cotton fabrics for civilian consumption at home and abroad and less for military services.

The decision on the part of the War Department to slow up delivery of cotton and woolen fabrics during the last quarter of 1943 coupled with the serving of notice on the industry that production in both of these categories would be substantially reduced in 1944 can best be understood in the light of top Governmental policies now actively operating:

First, the Administration is determined to avoid the rationing of civilian clothing and is therefore anxious to turn as much of textile facilities as possible to the production of civilian goods. It is also anxious to provide as large a production cushion as possible against the current and anticipated demands of Lend-Lease and the potential requirements of rehabilitation in countries under the control of the United Nations.

The Administration is also bent on early action to prevent undue stocking of military goods. There have been underway for sometime two inquiries into surplus stock inventories of the armed services—one by War Mobilization Director Byrnes and the other by the Truman Committee in the Senate. While no reports have been made as yet, the war agencies take it for granted that the findings will point to considerable overstocking in many things, and are now moving of their own accord to curtail commitments. This is the general picture into the framework of which we may expect, from now on many announcements affecting the textile and other industries to fit.

The two recent announcements from the War Department, coming within a few days of each other, mark the first big cutback to be announced in textiles.

As regards wool fabrics, the War Department has asked contractors to cut back deliveries voluntarily by 50% during the last four months of this year and has stated that deliveries of 1944 procurements are expected to be approximately at the same rate as present deferred deliveries. Procurements for 1944, according to Maj. Gen. C. L. Corbin, director of procurement, Office of Quartermaster General, will be substantially reduced. He pointed out that stocks on hand and goods on order would be sufficient to take care of all needs for the first part of 1944.

As for cotton, the War Department announced that deliveries of 8.2-oz. cotton khaki, 6-oz. cotton khaki and 5-oz. wind-resistant poplin will be reduced 50% for the last quarter of this year, and delayed deliveries postponed to the first three months of 1944 (except herringbone twills). Furthermore, Army requirements for these items will be reduced 50% in 1944.

IN BOTH ANNOUNCEMENTS the War Department's explanation is the same, namely that "pipelines through which Army material reaches Army fighting forces in various parts of the world have been adequately provided for," in one case, "as far as wool products are concerned" and in the other case, "for standard cotton fabrics." The disclosures clearly indicate overstocking and serve as a barometer for industry to get its pulse accustomed to a gradual tapering off of military orders in the textile field.

As was to be expected, these announcements gave rise to many questions of vital interest to the textile industry: How will the tapering off of military orders affect overall industry production? When may we expect a larger flow of textile goods for civilian use? What proportion of this increase will go for rehabilitation and Lend-Lease? What will be the effect on labor problems? What provision is the Government making for the orderly liquidation and adjustment of cancelled contracts?

Regarding the effect of curtailed Army orders on the textile industry, the Government's experts are proceeding on the assumption that no overall slackening in production is now in prospect. Arthur D. Whiteside, vice-chairman of WPB in charge of Civilian Requirements, lost no time in stating that whatever facilities are made available through relaxation of Army procurements will be needed to capacity for the manufacture of essential civilian type goods and goods for Lend-Lease.

When may we expect a larger flow of goods for civilian use? Mr. Whiteside stated that increased production as a result of deferred Army contracts for wool would go into civilian clothing for wear this fall and winter, but in certain needed items where there are acute shortages rather than for general use. For example, melton type fabrics are needed in larger volume this year for mackinaws, utility or lumber jackets for outdoor workers, and children's snow suits. Kenneth W. Marriner, Chief of WPB's Wool Branch, expects that approximately 15,000,000 yd. of woolens and worsteds will be made available to civilians through the Army's deferred delivery policy.

Complaints from the industry of unfair price ceilings on wool goods which may deprive civilians of the full benefit of this Army curtailment are being considered by OPA in meetings currently in progress with representatives from OCR. To date, there is no indication of what action, if any, will be taken on ceiling price adjustments.

Civilians cannot expect much increase in cotton fabrics this year, according to WPB officials. The most encouraging part of the Army announcement for civilians is the anticipated cut for next year. One official put it this way: "They will get more this year than they would if the Army had not curtailed its requirements, but whether they will have more than they are now getting is a question."

NO TOP OFFICIAL in Washington will undertake as of today to offer a guess on how much of the increased civilian production of textiles will go for Lend-Lease and for rehabilitation. There are two reasons for this reluctance. In the first place, such figures as are available are among the most closely guarded military secrets. In the second place,

estimates for any given period of time are regarded as hazardous because of the large number of variable factors: the progress of the war, the needs of the populations of different enemy-occupied countries and even enemy countries, and the Government policy regarding the latter. Officials at the moment prefer to think in terms of stockpiling for these purposes, rather than in terms of earmarking production.

The situation is particularly complicated at the time of writing because as yet there has been no clear cut determination as to where Lend-Lease ends and rehabilitation begins. Some experience has been gained in Africa and Sicily. A substantial amount of textiles is on its way to Sicily at this moment, but the quantity released so far is regarded as only a drop in the bucket when compared with anticipated requirements in textile-starved countries which will eventually be taken over. The experience now being accumulated, however, will eventually make it possible for the Government to make a better job of segregating textile production into the various channels.

If we are to accept the assumption of Government textile officials that the industry is to proceed on full-scale production, the question of possible unemployment on a large or small scale does not arise. Manpower will continue as one of the industry's principal problems.

THE NUMBER OF CANCELLATIONS of contracts to date has been small. One important cancellation for cotton duck was made, not primarily because of overstocking but to permit additional yarn for the cotton-tire program. Any cancellations coupled with the slowing up of deliveries have naturally brought into focus the Government's policy for cancellation of contracts.

The industry will be relieved to know that the Government's position on this important question has been well defined by General Corbin recently. He promised prompt reimbursements to the contractor for any loss which he might face as a result of cancelled contracts, either partially or in full. He indicated that where goods to be made under a cancelled contract were in process of being manufactured, the goods would either be completed and purchased by the Government for ultimate disposal through other channels, or the contractor would be reimbursed for any loss due to the cancellation.

This policy, Gen. Corbin said, also provides that subcontractors (such as producers of wool tops and yarns) file claims of loss resulting from cancelled contracts with their prime contractor. The Army will negotiate directly with the prime contractor on contract cancellations under the same procedure as was followed when the contract was originally awarded. Not only would the cancelled contract carry no direct loss to the contractor, but it would allow for profit on the completed portion.

Attention of the industry is called to Procurement Regulation No. 15, recently released by the War Department, which gives a complete picture of the Government's policy on termination of contracts. According to Colonel Houston, assistant director of purchases, Division of Army Service Forces, the prime contractor has three valid assets at the time of termination of a contract: (1) accounts receivable from the Government (2) amounts that have been paid to subcontractors (3) value of inventories (at their cost).

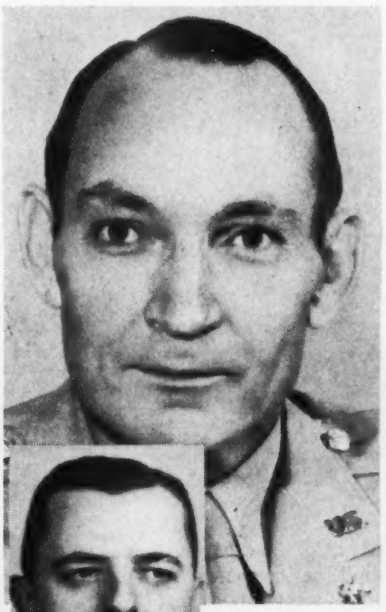
However, Gen Corbin does not expect any number of contract cancellations at present. In fact he goes so far as to say that present contracts will be completed unless unforeseen circumstances make this course inadvisable.

Changes at Philadelphia QM Depot

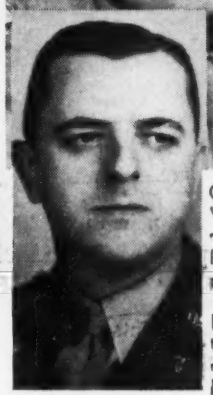
SEVERAL CHANGES have recently been made in the officer personnel of the Philadelphia Quartermaster Depot. Col. Roland Walsh is now commanding officer, as reported last month. Col. Elsmere J. Walters has replaced Col. William R. Buckley as Executive Officer, following Colonel Buckley's assignment to Governor's Island, N. Y. Lt. Col. Harold M. Manderbach has replaced Lt. Col. Walter L. Shearman, retired, as Director of Supply. Following the transfer of Lt. Col. Manderbach, a separation was made within the Quality Control Branch of the Procurement Division, with the Research and Development Section being reconstituted as a Branch with Lt. Col. Frank M. Steadman in charge. Lt. Col. Albert E. Dennis has been assigned to head the Quality Control Branch. Lt. Col. W. R. Stanert, formerly in charge of the New York District Branch Office, has returned to Philadelphia as Assistant to the Director of Procurement.

Lt. Col. Frank M. Steadman, in charge, Research and Development Branch.

Lt. Col. Albert E. Dennis, now in charge of Quality Control Branch.



Col. Roland Walsh, Commanding Officer, Phila. QM Depot.



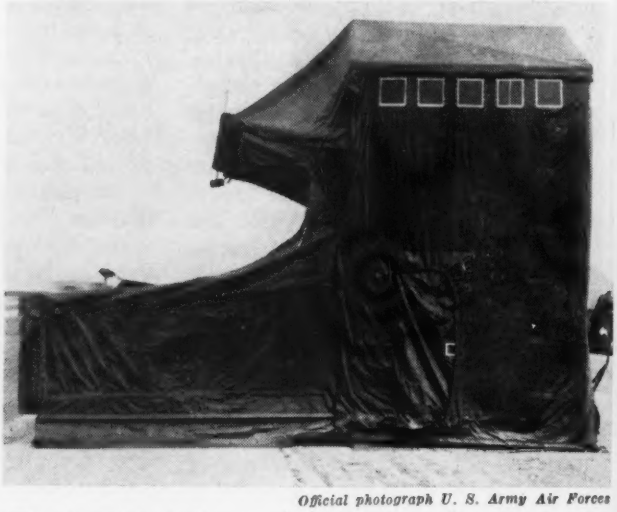
Lt. Col. Harold M. Manderbach, Director of Supply, Phila. QM Depot.

Col. Elsmere J. Walters, Executive Officer, Phila. QM Depot.

Lt. Col. Wm. R. Stanert, Assistant Director of Procurement.

COATED FABRICS for ar

Fig. 1. Army rainsuit made from two thicknesses of cotton fabric cemented together with a vinyl resin.



Official photograph U. S. Army Air Forces

Fig. 4. Field shelter used to repair and maintain airplane motors in stormy weather is made from synthetic-resin coated fabric.

Fig. 2. Navy rainsuit and hat worn by mine planters are made from fabric coated on both sides with synthetic resin.

SEVERAL IMPORTANT MILITARY uses for various types of coated fabrics—many of them developed since Pearl Harbor—are shown in the accompanying illustrations. These and other items of clothing and equippage for our fighting men were displayed recently at an exhibit assembly by the Fabrikoid Division of E. I. du Pont de Nemours & Co., in its office in the Empire State Bldg., New York.

Largest single use for coated fabrics, other than in tents, is in manufacture of Army raincoats; shortage of rubber led to development of a polyvinyl acetal resin coating which permits production of a lighter coat that is better in many respects than the rubberized ones. A new Army rainsuit worn over the regular uniform is shown in Fig. 1.; this is a duplex fabric made by cementing together two thicknesses of cotton cloth with a vinyl resin. One type of rainsuit and hat used by Navy mine planters is shown in Fig. 2; this fabric is coated on both sides with a synthetic resin. Marines carry a waterproof poncho which serves as a raincape, pup-tent section, and for wrapping supplies and equipment which must be kept dry; this is made from a duplex fabric combined with a polyvinyl acetal resin.

For arctic use, the Quartermaster Corps designed the sleeping bag shown in Fig. 3; the outer shell is made from vinyl resin coated balloon cloth, and the kapok-filled pad from a fabric coated with polyvinyl acetal resin. The jungle hammock shown in Fig. 6 has a waterproof and mildewproof canopy made from a synthetic resin coated fabric.

So-called mountain tents are made of a synthetic resin coated fabric—olive drab on one side, white on the other—for use in wooded or snow-covered terrain. A portable dark-room tent for fluoroscopic examinations, shown in Fig. 5, is made from a fabric coated with synthetic rubber. The field shelter shown in Fig. 4 is used for repair and maintenance of airplane motors in stormy weather; it is made from a fabric coated with synthetic resin.

The synthetic resin coated cotton or rayon fabric used as a utility cover and

All illustrations are Signal Corps photos unless otherwise credited

Fig. 3. Sleeping bag for arctic use has outside shell made from vinyl resin coated fabric; kapoc filled pad is coated with polyvinyl acetate resin.

ariety of Military Uses

Many new types have been developed to meet requirements of our armed forces

Fig. 7. Utility cover and sail for life raft, yellow on one side for rescue identification and dark blue on other for camouflage, is coated with synthetic resin.

Fig. 5. Portable dark room tent for fluoroscopic examinations is made from fabric coated with synthetic rubber.

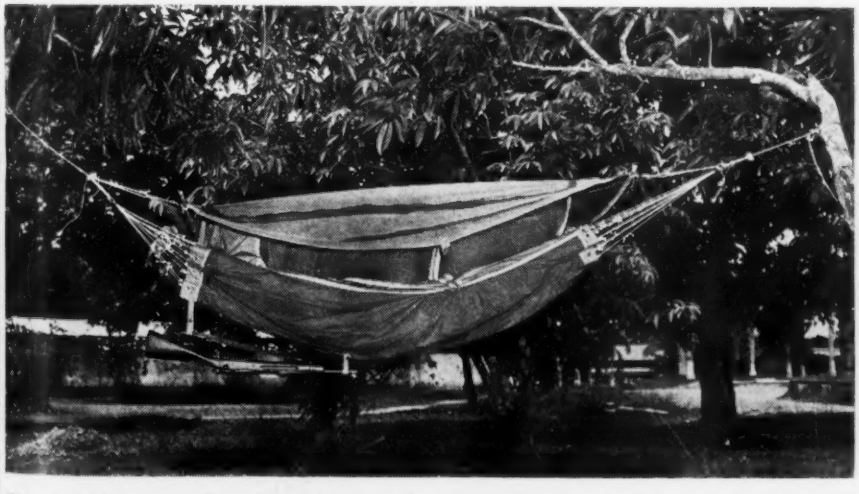


Fig. 6. Waterproof and mildewproof canopy for jungle hammocks is made from synthetic resin coated fabric.

emergency sail for life rafts, shown in Fig. 7, is colored yellow on one side for rescue identification purposes, dark blue on the other for camouflage. A second type of life raft covering is made from a light-weight Nylon fabric with synthetic resin coating. Another use for synthetic resin coated fabrics for camouflage is for covering dummies to draw enemy fire. Identification panels developed by the Signal Corps are employed to mark airplane landing fields; these are made from acetate rayon fabrics dyed in brilliant colors and coated with a vinyl resin; other identification panels are coated with ethylcellulose.

Among other items made from coated fabrics included in the Du Pont exhibit are twill outercovering for sheep-lined watch coats used by the Navy and Merchant Marine; Navy bedding bag coated with a special fire-resistant synthetic resin; life preserver jacket made from light-weight fabric coated on both sides with synthetic resin coating; protective clothing for decontamination crews made from fabric coated with a special gas-impermeable composition; gas mask face pieces; self-sealing fuel cells for aircraft made from synthetic rubber coated fabrics; protective covering for Signal Corps portable radio equipment.

Coated fabrics are used extensively for hospital and first aid purposes. One example is a synthetic rubber coated hospital sheeting having non-static properties. Others include a vinyl acetal resin coated fabric for covering chemical hot water bags; a covering for paratroopers first aid kits made from a fabric coated with a heat-sealing composition; and a cover for first aid kits for life rafts.

The principal function of coated fabrics for military purposes is for protection of men and equipment. The volume of coated fabrics procured by our Armed Forces runs into many millions of yards. Specification numbers and procurement agencies purchasing many of the more important types of coated fabrics were listed in the Textile War Manual, Digest of Finishing Specifications, in the July issue of TEXTILE WORLD.

MANUAL OF MILITARY FABRICS

Part VIII—9-oz. Sateen

Manufacturing and processing details for new fabric for field garments

To meet the need by textile mills for complete data on gray constructions, yarn organizations, weaving and finishing of fabrics required in large quantities for military use, TEXTILE WORLD, with the approval of officers of the Quartermaster Corps, began publication in the February issue of a Manual of Military Fabrics. The mill organizations and other manufacturing and processing data were furnished through the cooperation of textile mills which are producing these fabrics under Government contract. It is recognized that other plants having different types of equipment will have to make some modifications in the organizations, formulas, and procedures presented. Accordingly, these data should be regarded not as "standards" which must be followed, but as guides to the more efficient production of this fabric. Parts previously published are as follows: Part I, 5-oz. Poplin Type II. P.Q.D. No. 1, February; Part II, 6-oz. Cotton Twill, Army Specification 6-311, March; Part III, 8.2-oz. Cotton Twill, Type I, Army Specification, 6-201B, April; Part IV, 8.2-oz. Cotton Twill, Type II, Army Specification 6-201B, May; Part V, 8.5-oz. Herringbone Twill, Army Specification 6-261, June; Part VI, 8.2-oz. Cotton Twill, Type IV, Army Specification 6-201B, July; Part VII, 32-oz. Melton, Army Specification No. 8-53-A, August.

WIND-RESISTANT, COTTON, 9-OZ. SATEEN, covered in specification PQD-245D is being considered for use as a standardized fabric construction for field garments used by special forces of the Army, such as mountain troops and cold climate troops. This fabric, only developed last year and used in trousers for mountain troops to date, appears destined to become a popular military fabric. It appears that this fabric may be adopted by the forces mentioned for the construction of a "battle dress" which would be comparable with herringbone twill now employed by other divisions of the Army.

The fabric is procured in two types, Type I being a 5-harness satin weave and Type II a 4-harness crowfoot weave. Practically all procurement, however, has been of the 5-harness fabric. Under tests, this fabric has proved to be more wind-resistant than a wind-resistant 5-oz. poplin and will, undoubtedly, prove to be a substitute for Byrd cloth. Whereas 5-oz. poplin has an air permeability rating of 70 sec., the 9-oz. sateen is being procured with a rating of 100 sec.

Below is given an abstract of Specification 245D, together with preliminary information—not given in the specification—on the manufacture and processing of this fabric.

Abstract of Specification

Cotton: Shall be of suitable length of staple and grade to meet the requirements of the specification.

Yarn: The cotton used in the manufacture of the yarn shall be thoroughly cleaned; well combed, drawn, and evenly spun into 2-ply yarn for both warp and filling.

Color: As specified in invitation to bids, the cloth shall match an approved sample and shall be evenly dyed with vat dyes.

Physical Requirements: Width, excluding selvage, shall be not less than 36 in. Finished weight per sq. yd., 9-oz. Thread count for Type I, 112 ends per in., 68 picks per in., breaking strength for warp 160 lb. and 135 lb. for filling. Type II specifies 116 ends per in., and 64 picks per in.; breaking strength of warp, 160 lb., and 120 lb. for filling.

Weave: Type I, five harness sateen, counting with two. Type II, four harness warp effect crowfoot weave.

Finish: Cloth shall be closely singed, mercerized, then dyed and made water repellent. It is then dampened, given a hot bowl calendering, and Sanforized. *Shrinkage*—As covered in section XIV of Federal Specification CCC-T-191, shrinkage shall not be more than 1% in direction of warp, nor more than 2% in direction of filling. *Air Permeability*—As determined with a Gurley Desometer using a orifice of 0.1 sq. in. in area and 5-oz. wt. shall be not less than 100 sec. for the passage of 300 c.c. of air. *Water Repellency*—Fabric shall be given a durable type water repellent finish to meet the following minimum requirements when tested as outlined below: Spray Rating—initially, 90; after 3 launderings, 70; after 3 drycleanings, 70. Hydrostatic pressure (cm)—initially 40; after 3 launderings, 25; after 3 drycleanings, 30. Water Absorption %–initially, 20; after 3 launderings, 25; after 3 drycleanings, 25. *Length*—Cloth shall be in one continuous piece of not less than 50 yd. unless otherwise specified.

Note: Before production is commenced, a sample of the cloth should be submitted to the contracting officer for approval.

Tests

Wherever applicable, tests described in Federal Specification CCC-T-191a should be followed. Tests for fastness to bleaching and for water repellency are described in Specification P.Q.D. No. 245D. Tests for water repellency are carried out as follows:

Spray Resistance—Fit a small spray nozzle with approximately 20 holes 0.035 in. in diameter to a funnel. The test specimen is clamped to a suitable frame which is mounted at an angle of 45° so that the center of the specimen is 6 in. directly below the nozzle. Pour 250 c.c. of water at 80°F. into the funnel. After the spray, tap one edge of the frame against a solid object, then rotate 180° and once more tap at point where previously held. Rate sample visually as follows:

100—No sticking, spotting or wetting of upper surface.

90—Slight random sticking or spotting of upper surface.

80—Wetting of upper surface at a majority of points where water sprays impinge.

70—Partial wetting of whole of upper surface subjected to spray pattern.

Laundering Test—The method of testing described in Section XIV-1 and 2, Federal Specification CCC-T-191, followed by two additional hot water rinses, shall be employed.

Dry Cleaning Test—Employ a machine such as described in Section XIII, Paragraph 4, Federal Specification CCC-T-191. A 7x7 in. test sample of fabric is placed in a 1-pt. jar with 200 c.c. clean Stoddard Solvent and run for 20 min. at 80°F. Sample is then removed, air dried, and ironed or hot pressed.

Hydrostatic resistance—A sample of cloth shall be clamped over the orifice of a hydrostatic pressure machine and subjected to pressure from a column of water at 70°F., rising at a rate of 1 cm.

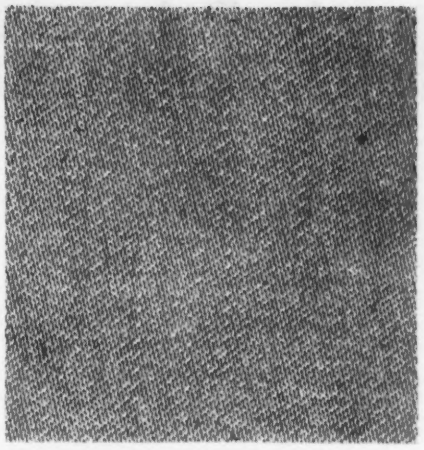
per second. The height of the column when 3 drops of water at separate points penetrate the fabric shall be recorded.

Immersion Test—Cut out a 3x3 in. sample of the fabric to be tested. Weight to the nearest 5 milligrams (air-dry weight). Fasten a sinker to one side of the sample. Drop the sample (with the attached sinker) into the immersion tank containing water at 80 ± 1°F. The sinker should be heavy enough to sink to the bottom of the container, and the depth of water in the container should be adjusted so that the test fabric will be submerged under an average hydrostatic head of 3.5 in. Allow test fabric to remain submerged for 20 min. At the end of the immersion period, remove the fabric from the water and remove the attached sinker. Quickly place the fabric between two 7x8 in. pieces of dry blotting paper, to form a sandwich and squeeze through a wringer. The rolls of the wringer should be rubber covered and kept under a uniform pressure. Quickly re-weigh the test fabric. Divide the increase in weight of the test fabric by the original air-dry weight and multiply the result by 100 to obtain the per cent water absorbed. Run the test on three samples of the fabric and average individual results.

The blotting paper should meet the following specifications: Absorbency—(1 cc Standard Government Ink) 40 to 50 sec. Caliper—26 to 26½ points. Bursting Strength—(Mullen) 40 to 45 lb. per sq. in. A blotting paper which meets the specifications is 24x38, 240 Buff Sterling Blotting of the Standard Paper Mfg. Co., Richmond, Va.

Photo Section Philadelphia QM Depot

One probable use for the 9-oz. sateen is likely in uniforms for mountain troops.



9-oz., 5-harness sateen.

Manufacturing Details

Mills that have been producing 8.2-oz. twill, 6-201B, should be able to change over to the sateen, as only a few minor variations exist between the constructions of these two fabrics.

Yarn Manufacture—Yarns are made on standard combed yarn equipment without special settings in feeds and speeds of the picker through to the finished yarn. A 36/2 combed yarn warp and a 24/2 combed yarn filling are generally used. Opening, blending, picking, carding, combing, and drawing organizations No. 3 and roving organization No. 4 can be used for both warp and filling. Spinning organization No. 5 and winding and twisting organization No. 2 can be used for the warp. Spinning organization No. 6 and winding and twilling organization No. 3 can be used for the filling yarn. Size formula No. 3 is suitable for warp sizing. (All organizations mentioned above appear in Part III of this Manual, TEXTILE WORLD, April, 1943.)

Fabric manufacture—The following gray construction should be approximately correct for Type I: loom width, 40 in., thread count 108x70; 1.60 yd. per lb. The following gray construction should be approximately correct for Type II: loom width 40 in., thread count 112x66; 1.60 yd. per lb. Looms mentioned in Part III of this Manual are suitable.

Finishing Details

Scouring and Mercerizing

Follow procedure outlined in Part II of this Manual, with exception that the concentration of the caustic soda mercerizing bath can be reduced, as only partial mercerization is required.

Dyeing

It is believed that extensive procurements will be made specifying OD No. 7 shade. Vat Dye Formula No. 6 or No. 7 (Part V of this Manual, TEXTILE WORLD, June, 1943) is approximately correct for producing this shade. Follow dyeing method outlined in Part II of this Manual (TEXTILE WORLD, March 1943) with modifications given in Part V of this Manual.

Finishing

1. Apply durable water-repellent finish which will meet requirements given above in abstract of specifications. A suitable procedure using Zelan as the water repellent and employing a continuous machine was given in Part I of this Manual (TEXTILE WORLD, February, 1943).
2. Dampen.
3. Calender on hot-bowl calender.
4. Sanforize to meet shrinkage requirements given above in abstract of specification.

Inspecting and Folding

1. Inspect.
2. Fold in continuous lengths of not less than 50 yd.
3. Ticket and pack according to instructions in Specification P.Q.D. No. 245D. Unless otherwise specified in invitation for bids, the cloth shall be commercially packed so as to insure acceptance by carriers at the lowest rate to the point of delivery specified in the contract.
4. Unless otherwise specified in invitation for bids, contract, or other order under which shipment is made, mark shipping containers in accordance with Quartermaster Corps Tentative Specification O.Q.M.G. 94.

Photo Section Philadelphia QM Depot

Another probable use for the 9-oz. sateen is in enlisted men's cold climate uniform for field wear.

Plan Research-Education Tie-Up

SUBMISSION OF A PROGRESS REPORT on plans for linking the activities of Textile Research Institute, Inc., with one of the outstanding universities, and unanimous approval of the broad framework for the future of the organization, as set forth in a detailed memorandum recently mailed to its nearly 400 members, featured a meeting of the Institute's Board of Directors Aug. 26.

The action followed a meeting the previous day of the Institute's Technical Research Committee, at which specific research plans were formulated. Several of the projects are important to the war effort, it was reported.

The tie-up between textile research and higher education is still in the tentative stage, but marked progress toward effecting it was announced by Fessenden S. Blanchard, president of the institute, who presided over the board meeting. The technical session was directed by William D. Appel, chairman of the Technical Research Committee.

"Textile firms in the 1940's, like the American patriots of the 1770's, must hang together—or they are all too likely to hang separately" is the theme of the memorandum endorsed by the directors. This pamphlet, available to all textile men on request, is a preliminary step in connection with the announced program of raising a $2,000,000 fund at the rate of $300,000, a year for a five-year period, plus a capital sum of $500,000.

Such an institute as is being developed will represent the mutual interests of all phases of the industry, it is said, rather than that of any one branch or section. Thus, lines of demarcation among types of mills and fibers can be eliminated, a vital consideration under present and postwar conditions.

The pamphlet describes other major advantages of cooperative industry-wide research as follows:

1. By uniting the research facilities of all companies of an industry, one industry-wide agency can do a much more comprehensive job than can any one company.

2. Long-range, fundamental research, which seldom yields a quick profit, is a proper function of the central research agency; single companies are loath to undertake such programs. The fact is that unless a central agency exists to undertake fundamental research, it is usually not done, and the industry suffers.

3. A well-organized, highly-sponsored central agency, especially one affiliated with an outstanding university, will attract the best available scientific brains—to the benefit of the industry as a whole.

4. Such an agency will feed into the industry each year a number of men highly trained in textile chemistry, physics and engineering. These men will do much to meet the industry's need for the most competent technical and managerial brains.

5. Because a comprehensive, industry-wide research program, conducted by well-trained scientists of established reputation, is so obviously "in the public interest," it cannot fail to add to the industry's prestige.

6. Most important of all, the textile industry, through one central research agency, will present a united front to growing competition from industries such as paper, chemicals, plastics.

R. R. West to Head Economic Research

THE APPOINTMENT of Robert R. West, president of the Esmond Mills, as chairman of its Committee on Economic Research, and the selection of the members of that committee were announced recently by the Textile Research Institute, Inc. The chief function of the committee will continue to be recommend to the institute important projects in economic research and to supervise their production.

In discussing the work of the committee Mr. West said: "The amount of economic research to be done in industry is well appreciated. It is hoped that this committee will be useful in bringing this subject into focus, and successful in arranging for significant studies."

In its ten-year history, the Committee on Economic Research of the institute has won considerable recognition for its activities, particularly for two reports which were financed by the Textile Foundation: (1) "Vertical Integration in the Textile Industries," Industrial Research Department of Wharton School of Finance and Commerce, University of Pennsylvania, 1938. (2) "Inventory Policies in the Textile Industries," seven monographs, same agency, 1941.

ROBERT R. WEST

In addition to Mr. West the members of the Committee are: F. W. Binzen, merchandise manager, J. C. Penney Co., Inc.; Irene L. Blunt, executive secretary, National Federation of Textiles; Flint Garrison, publisher of *Garrison's Magazine*, and former president of the Wholesale Dry Goods Institute; A. Ford Hinrichs, Acting Commissioner of Labor Statistics, U. S. Department of Labor; L. A. Hird, treasurer, Samuel Hird & Sons; Luther Hodges, vice-president, Marshall Field & Co.; Stanley B. Hunt, editor, *Rayon Organon* and president of Textile Economics Bureau, Inc.; Lt.-Colonel Stephen J. Kennedy, in charge of the Textile Branch, Research and Development Division, Quartermaster Corps, U. S. A.; H. E. Michl, economist, Cotton-Textile Institute; Douglas G. Woolf, editor, TEXTILE WORLD.

A graduate of Harvard in 1915, Mr. West entered the textile industry the next year. He has been associated with the Lawton Mills, the Roxbury Carpet Co., the Lancaster Mills, and, from 1930 to 1940, with the Riverside & Dan River Cotton Mills. In 1940 he was appointed director of the Bureau of Industrial Research at the University of Virginia. In December 1942 he became president of the Esmond Mills, Inc.

Tiger Stripes in Army Socks

Frequently traced to mercerization; practical tests for tracing such defects outlined

HOSIERY MANUFACTURERS AND DYERS have experienced considerable difficulties from variations in the summer tan shade dyed on Army hose. These shade variations, generally known as tiger or zebra stripes and consisting of bands or color shaded from very light to very dark and abrupt changes from light to dark, appear in pattern or random effects. Although dyers and technicians check the methods of dyeing when these defects appear, there is evidence that the principal cause of this complaint is in the mercerizing operation. Tiger stripes can also be traced to the improper selection and mixing of cotton fibers, uneven carding and spinning, mixed yarn numbers, variation in twist, contact of fibers or yarn with foreign matter resistant to dyeing and faulty boiling out or wetting out.

Causes of faulty mercerizing include improper caustic treatment, poor mixing of acid and local overheating due to putting of the acid directly into the box with water, worn or grooved rolls on machines resulting in uneven tension on some ends during mercerizing, and degradation of the cellulose fiber. Faulty dyeing may be due to improper boil out, uneven entry of dye and chemicals into dyebath, or poor control of temperatures and length of dyeing cycles. For light shades, dyes should be selected that exhaust from the bath without the use of salt.

TESTS HAVE BEEN DEVISED which make it possible to localize the conditions or operations causing the variable shades. By using the redyeing test whereby the shaded hosiery fabric is stripped and redyed, it is possible to determine if the dyeing is at fault. If upon redyeing the fabric still contains the tiger stripes, the dyeing operation can be eliminated as the source of trouble. Variations are then likely to be found in the previous processes.

Variations due to differences in yarn count, twist, and the presence of impurities should be sought; and standard tests for these are well established. Such variations are likely to be evidenced by abrupt changes in shade, usually beginning at a knot in the single or plied yarn where the two yarns are joined at the twisting or knitting machine. Fiber differences also result in uneven or spotty dyed yarn caused by mixing grades or improper blending. Shade variations that are periodic in character are fairly easy to localize, as they indicate the hank structure used at the process creating the defect.

Variations in mercerization treatment exert considerable influence on the dyeing qualities of yarns. Provided it has been established that variations are not due to other factors, the uniformity of the mercerizing treatment can be examined by tests described by Clibbens and Geake of the British Cotton Industry Research Association, and described in *The Journal of the Textile Institute*, June, 1933.

THE DECONVOLUTION COUNT was devised and used to establish variations as due to improper impregnation of the yarn by the mercerizing bath. This test is performed by examination under a microscope and then counting the number of fibers free of convolutions and the total numbers of fibers of short lengths, 0.2 mm. in length, that have been mercerized. The percentage of total fibers free of convolutions to the total number examined expressed in percentage is the deconvolution count. The total number of fragments counted in each test varies from 700 to 1000, and the time required for a single test is approximately 30 min. This test is based on the fact that cotton fibers when treated with caustic swell from flat convoluted ribbons to round deconvoluted cylinders, depending on the degree of impregnation and strength of the caustic solution. At the range of normal technical mercerizing liquors, from 50° to 60° Tw., the count is insensitive to small variations in the concentration of the mercerizing liquor.

TEST DEVICE AND RESULTS

FIG. 1

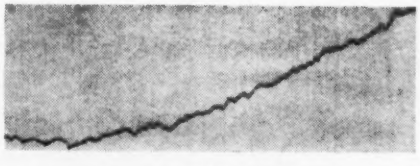


FIG 2

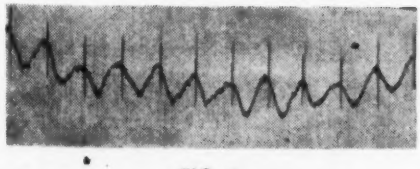


FIG. 3

Fig. 1. Steel rod used for wrapping the yarn for the shrinkage diagram test. **Fig. 2.** Shrinkage diagram of a remercerized yarn satisfactory for level-dyeing. **Fig. 3.** Shrinkage diagram of a remercerized yarn unsatisfactory for level-dyeing.

THE SHRINKAGE DIAGRAM test, devised to detect variations in shrinkage of mercerized yarn, can be used to determine whether variable tension is causing the shade variation. A mercerized yarn when remercerized without tension will shrink the most in lengths that previously had less shrinkage and vice versa. To perform this test, a sample of the dyed yarn to be examined is removed from the hose and wrapping on a steel rod of 2 in. dia. and 6 in. long by a special winding apparatus. A straight line is inked on the yarn, as shown in Fig. 1, parallel to the axis of the rod. The yarn is unwound from the rod, carefully measured, and remercerized in caustic without tension. A second measurement is made after drying, the shrinkage determined, and the yarn wrapped on a rod of smaller diameter than the first, to compensate for shrinkage. The yarn is secured with adhesive tape, and removed from the rod by cutting along the axis. This sheet of yarn is flattened out and secured to a card. Upon examination, it will be found that the dots have again formed a line which represents the shrinkage diagram of the yarn. When the line is an even curve, as in Fig. 2, the original shrinkage in mercerization can be considered as satisfactory for level dyeing. Should the curve be broken with sharp peaks and age can be considered as unsatisfactory valleys, as in Fig. 3, the original shrink- for level dyeing.

Power Requirements for Spinning

Recently our Questions & Answers Department received an inquiry as to methods for calculating power requirements for spinning frames on various sizes of cotton yarns. Such a method was described by the late E. A. Untersee, of General Electric Co., in a paper presented at a convention of the American Institute of Electrical Engineers in January, 1940. By special permission of the Institute, we are reprinting this paper in part. Although the formula and tables refer specifically to the Whitin Model F2, long-draft frame, the figures are approximately correct for all makes of spinning frames.

Formula and tables aid in selection of proper size of motor for driving frames

TESTS TO DETERMINE THE CHARACTERISTICS and power requirements of spinning frames were made originally on a 348-spindle Whitin frame with 1½-, 2-, and 2¼-in. rings, operating at different speeds. Later tests were conducted on a 216-spindle Whitin frame, with 2¼-, 2½-, 2¾-, and 3-in. rings, spinning 10s yarn. In comparing the more recent tests with the original tests, it is immediately evident that the 2¼-in. ring is common to both and that they do not indicate the same power requirement. It is also evident that the effect of yarn size on power requirements, other conditions being the same as indicated in Feg. 1, is definitely a factor to be considered in establishing a formula for power.

The relationship between yarn size and yarn weight is shown in Fig. 2. Since the weight is so small and decreases so gradually in sizes smaller than 20s, it is doubtful whether it will affect the power appreciably in this range. In sizes larger than 20s, however, the weight increases rather rapidly, and should, therefore, be taken into consideration.

In Fig. 1, which covers the 348-spindle frame and the 216-spindle frame, the power curves have all been reduced to a 216-spindle basis for the purpose of comparison. In this comparison we have the following data to analyze for the effect of yarn size on power.

1½ in. ring.....33s yarn
1¾ in. ring.....33s yarn
2 in. ring.....20s yarn
2¼ in. ring.....20s yarn
2¼ in. ring.....10s yarn
2½ in. ring.....10s yarn
2¾ in. ring.....10s yarn
3 in. ring.....10s yarn

If we analyze each one of the curves separately, the power seems to vary as the $\left(\frac{RPM}{1000}\right)^{3.04}$ — RPM being the spindle speed.

The spacing of these curves must depend on the ring diameter and the size of yarn; and if we consider frames on which the same size of yarn is spun and run at a fixed speed, it shows the power varies in accordance with 1.42 power of the ring diameter.

The other variable which enters the

Table I—Spindles per horsepower for different sizes of yarns at various speeds.

Ring Dia.	*Spdl. RPM*	*Yarn Size* 2	4	6	8	10	12	14	16	18	20	30
1¼"	12000									27.40	28.00	28.00
	11000									32.90	33.60	33.60
	10000									39.70	40.60	40.60
	9000									49.50	50.70	50.70
	8000									63.00	64.50	64.50
	7000									82.70	84.50	84.50
1½"	12000						19.40	20.00	20.60	21.10	21.60	
	11000						23.35	24.10	24.80	25.40	26.00	
	10000						28.15	29.10	29.90	30.70	31.60	
	9000						35.30	36.50	37.40	38.40	39.20	
	8000						44.70	46.20	47.50	48.70	49.80	
	7000						58.50	60.50	62.20	63.70	65.20	
1⅜"	12000					15.70	16.30	16.85	17.30	17.72	18.15	
	11000					18.90	19.60	20.30	20.80	21.35	21.90	
	10000					22.90	23.80	24.60	25.20	25.90	26.50	
	9000					27.20	28.25	29.20	30.00	30.80	31.50	
	8000					35.20	37.60	38.90	40.00	41.00	42.00	
	7000					47.30	49.10	50.70	52.10	53.50	54.70	
2"	12000				11.44	12.40	12.87	13.30	13.68	14.00	14.35	
	11000				13.78	14.90	15.50	16.00	16.42	16.85	17.27	
	10000				17.20	18.00	18.70	19.35	19.90	20.40	20.90	
	9000				21.46	22.50	23.30	24.10	24.80	25.40	26.05	
	8000				27.20	28.50	29.60	30.60	31.40	32.20	33.00	
	7000				35.70	37.30	38.80	40.00	41.20	42.25	43.25	
2¼"	11000			11.35	12.05	12.63	13.10	13.55	13.93	14.30	14.62	
	10000			13.70	14.58	15.25	15.85	16.40	16.85	17.25	17.70	
	9000			17.10	18.20	19.10	19.80	20.50	21.05	21.60	22.10	
	8000			21.70	23.10	24.20	25.10	26.00	26.70	27.40	28.00	
	7000			28.40	30.20	31.70	32.90	34.00	35.00	35.80	36.70	
	6000			38.90	41.40	43.30	45.00	46.50	47.80	49.00	50.20	
	5000			56.40	60.00	62.80	65.20	67.50	69.40	71.00	72.70	
2½"	10000		10.81	11.78	12.53	13.13	13.64	14.10	14.50			
	9000		13.50	14.75	15.65	16.40	17.04	17.60	18.05			
	8000		17.10	18.70	19.82	20.80	21.75	22.30	22.90			
	7000		22.40	24.40	26.00	27.20	28.25	29.20	30.00			
	6000		30.80	33.50	35.70	37.40	38.80	40.10	41.20			
	5000		44.50	48.60	51.60	54.20	56.20	58.00	59.50			
2¾"	10000	8.17	9.45	10.30	10.95	11.47	11.90	12.30				
	9000	10.17	11.76	12.82	13.65	14.30	14.85	15.34				
	8000	12.92	14.95	16.28	17.30	18.16	18.80	19.42				
	7000	16.95	19.60	21.30	22.70	23.80	24.70	25.50				
	6000	24.10	27.90	30.40	32.30	33.90	35.10	36.25				
	5000	33.70	38.90	42.30	45.10	47.20	49.00	50.60				
3"	10000	7.24	8.36	9.10	9.68	10.15	10.54					
	9000	9.01	10.40	11.35	12.08	12.65	13.14					
	8000	11.45	13.25	14.43	15.35	16.10	16.70					
	7000	15.05	17.40	18.90	20.15	21.10	21.90					
	6000	20.60	23.80	25.90	27.60	28.90	30.00					
	5000	29.90	34.50	37.60	40.00	41.90	43.40					

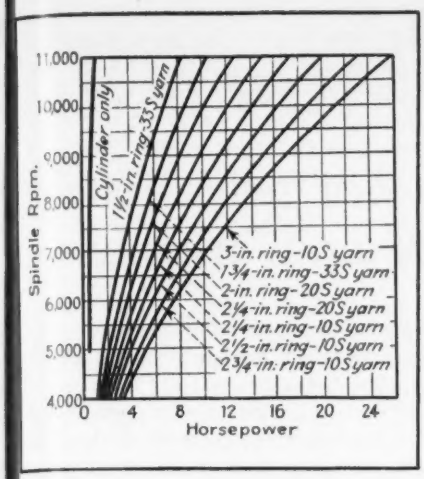


Fig. 1. Power requirements of a 216-spindle spinning frame with different diameter rings and various yarn sizes, formula derived from test data.

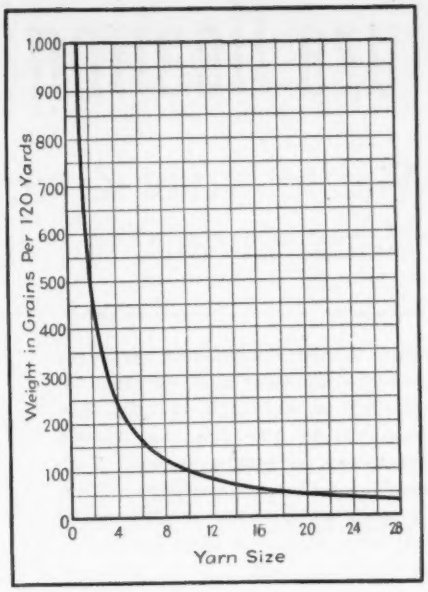


Fig. 2. Relation between yarn size and weight.

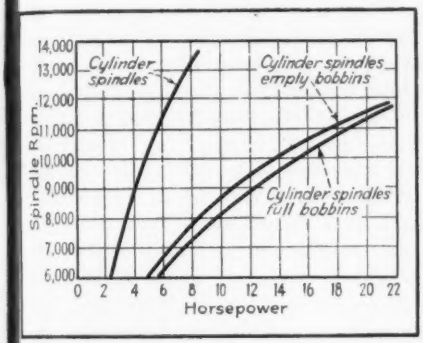


Fig. 3. Breakdown test on 216-spindle frame 2¼-in. diameter ring.

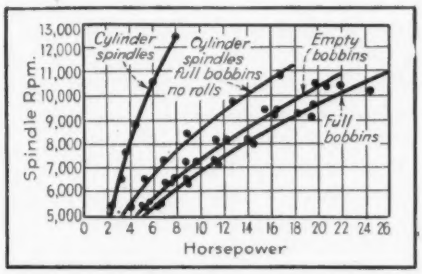


Fig. 4. Breakdown test on 216-spindle frame 3-in. diameter ring.

Table II—Values for terms used in formula for power.

$R - R^{1.42}$	$S - \sqrt{\frac{0.0003055}{4.75}}\ S$	$RPM - \left(\frac{RPM}{1000}\right)^{2.04}$	
1 — 1.000	2 — 0.0002640	1000 — 1.0	6600 — 47.00
1¼ — 1.373	4 — 0.0002285	1200 — 1.452	6800 — 50.00
1⅜ — 1.572	6 — 0.0002095	1400 — 1.988	7000 — 51.50
1½ — 1.780	8 — 0.0001970	1600 — 2.610	7200 — 56.10
1⅝ — 1.992	10 — 0.0001880	1800 — 3.32	7400 — 59.50
1¾ — 2.215	12 — 0.0001810	2000 — 4.120	7600 — 62.60
1⅞ — 2.440	14 — 0.0001750	2200 — 5.000	7800 — 66.00
2 — 2.680	16 — 0.0001705	2400 — 5.970	8000 — 69.50
2⅛ — 2.920	18 — 0.0001665	2600 — 7.030	8200 — 73.00
2¼ — 3.160	20 — 0.0001625	2800 — 8.190	8400 — 76.70
2⅜ — 3.420	22 — 0.0001595	3000 — 9.420	8600 — 81.10
2½ — 3.680	24 — 0.0001562	3200 — 10.720	8800 — 84.50
2⅝ — 3.940	26 — 0.0001540	3400 — 12.15	9000 — 88.50
2¾ — 4.200	28 — 0.0001498	3600 — 13.63	9200 — 92.50
2⅞ — 4.470	30 — 0.0001490	3800 — 15.25	9400 — 97.00
3 — 4.760	35 — 0.0001450	4000 — 16.90	9600 — 101.00
3¼ — 5.330	40 — 0.0001406	4200 — 18.70	9800 — 106.00
3½ — 5.930	45 — 0.0001370	4400 — 20.50	10000 — 110.00
3¾ — 6.530	50 — 0.0001340	4600 — 22.50	10200 — 114.00
4 — 7.160	55 — 0.0001313	4800 — 24.50	10400 — 118.50
4¼ — 7.800	60 — 0.0001290	5000 — 26.60	10600 — 123.50
4½ — 8.460	65 — 0.0001270	5200 — 29.00	10800 — 128.00
4¾ — 9.150	70 — 0.0001250	5400 — 31.20	11000 — 133.00
5 — 9.840	80 — 0.0001215	5600 — 33.60	11200 — 138.00
	90 — 0.0001185	5800 — 36.10	11400 — 143.00
	100 — 0.0001160	6000 — 38.80	11600 — 149.00
	120 — 0.0001123	6200 — 41.30	11800 — 154.00
	140 — 0.0001080	6400 — 44.10	12000 — 160.00

picture, yarn size, is evident in the power curves for the 2¼-in. rings with 10s and 20s yarn, and here the power appears to vary in accordance with $1 \div 4.75 \sqrt{\text{Yarn Size}}$ from which we may develop the following formula for power:

$$\left(\frac{\text{Hp. per}}{\text{Spindle}}\right) = \sqrt{\frac{0.0003055}{4.75}}\ S \times R^{1.42} \times \left(\frac{RPM}{1000}\right)^{2.04}$$

Where: S = Yarn size; R = Ring diameter in inches; and RPM = Spindle speed

Table I has been calculated using this formula. Ring sizes and yarn numbers spun in cotton mills vary so widely that no attempt has been made here to cover all conditions, but the figures given will serve as a basis for the more common combinations. Table II gives the values for the terms used in the formula.

Power readings were taken while spinning yarn at the empty bobbin position, and again at the full bobbin position for each diameter of ring, over a range of spindle speeds from approximately 6000 to 11,500 r.p.m.

The curves in Fig. 3 show the power requirements when spinning with 2¼-in. diameter rings, with medium large spindles. The power curve for the cylinder and bare spindles is also plotted. The curves in Fig. 4 show the power requirements when spinning with 3-in. diameter rings with large spindles. It is interesting to note on the breakdown tests on the larger ring diameter that the power required to spin yarn at the empty bobbin position was considerably more than the power required to drive the spindles with full bobbins, and without the front rolls running. This increase in power is accounted for in the windage and friction of the balloon of the yarn and the traveler.

Results of both series of tests show that the cotton spinning frame has a very definite speed-power characteristic which is not only affected by the number of spindles, but also by the ring diameter and the size of yarn spun. When these conditions are known, it is possible to predict, within reasonably close limits, the power required.

There is a possibility that spinning frames, like most other machines, may vary slightly in power requirements even when so-called duplicates are involved. These variations should not affect the horsepower rating of the motors selected to drive the frames, and these data should be of considerable help to the machine manufacturer and the textile manufacturer in selecting the proper size of motor for applying to spinning frames within the scope of these investigations.

High-Temperature Heating

By PAUL L. GEIRINGER
Licensed Professional Engineer

With hot water for post-war in dye houses offers savings in fuel and installation

Steam requirements for heating and processing in dyeing and finishing operations must be carefully surveyed in the light of wartime shortages and restrictions of coal and fuel oils. Whenever savings are possible, through slight changes, they should be effected, but investigation of these changes may point out decided economies attainable through a complete change-over in heating systems. Such extensive alterations should be considered carefully in the post-war period. High-temperature hot-water heating is one of the systems which should receive careful consideration as it has been used successfully and resulted in large savings in textile mills in England, Ireland, Germany, Czechoslovakia, Austria, Hungary, and in other European countries.—Editor.

INVESTIGATION OF HEATING REQUIREMENTS of dyeing and finishing processes will determine if maximum economy has been reached. Assume that such an investigation indicates that the boiler house is equipped with the most modern devices and is operating at top efficiency; then, the next approach is that of reducing heat losses in transfer. Heat losses in transfer are always rather high in textile mills; consequently, the heat utilization for any given process is very low.

Two systems of heating have been used in this country, a third, while used extensively abroad has just been introduced and offers many unusual possibilities for textile mills. These systems are, first, a low pressure steam system, second, a high pressure steam system, and third the high-temperature hot-water system.

LOW PRESSURE STEAM SYSTEM—Low pressure systems using 5 to 15 lb. per sq. in. are frequently designed to utilize the lowest possible steam pressure for the power plant, or, if no power plant equipment is required, it provides a heating system which can be serviced by an unskilled fireman or engineer.

The advantages of utilizing a low pressure steam-heating system to gain greater efficiency in the power plant through lower back pressure is, however, partly lost through the increased initial expense for larger pipes and the great loss in steam in transit to the processing equipment. If the insulation of these large steam pipes is inefficient, apparent savings made by cheaper power generation are lost through excessive heat dissipation. One advantage of a low pressure steam system is that condensate leaves the traps at such a low temperature that no flashing of the condensate can take place.

Much of the processing equipment built recently for the textile industry has already overstepped these low pressure limits, namely 5 to 15 lb. per sq. in., and require operation at higher temperatures which cannot be obtained with such low pressures. This is especially true of drying equipment. For dyeing purposes and for some finishing processes low pressure steam can be applied, although with rather poor results.

If higher boiler pressure is used, the distribution of steam to processing equipment can be carried out with at least 40 to 50 lb. per sq. in. pressure, one at which the heat distribution is fairly efficient.

High pressure steam distribution is carried out at pressures ranging from 60 to 100 lb. per sq. in. and requires much smaller pipes; consequently the heat losses are perceptibly smaller. However, the flash-out losses of the condensate are considerable and complicated apparatus and equipment are required to reduce these losses. In most instances, it is not practicable to reclaim even a part of these heat losses. Another disadvantage of the high pressure system is that the condensate piping cannot be protected against the corrosive influence of oxygen and gases, hence the pipe is nearly always under continuous repair. Usually it has to be replaced every 5 to 10 yr.

HIGH-TEMPERATURE HOT-WATER HEATING—Attempts to lower the heat losses during transmission over the past twenty years has resulted in the extensive adoption throughout Europe of the high temperature hot water system. The allocation of heat by means of high-temperature hot water evades most of the deficiencies of low pressure and high pressure steam systems and results in higher overall operating efficiencies.

In place of steam, is circulated hot water ranging in temperature from 290° to 300°F. A temperature drop of 50° to 150°F. is obtained and this can be increased to 250°F. if higher water temperatures of 350° to 400°F. are used. A high temperature drop makes it possible to utilize pipes of unbelievably small dimensions, as shown in Fig. 1. It is possible to install room heating with about half the weight of pipe as normally required for a low pressure steam seating system. Today, especially since the scarcity of material has become so acute, this type of heating system when used in new or renovated mills permits vital savings in steel. Nevertheless, low pressure steam heating systems are still installed in new plants and in extensions added to existing mills.

The overall efficiency of a high-temperature hot-water system, excluding the boilers, reaches 90% to 95%, thus presenting savings other than initial costs. Inefficiency of the pipe insulation is about the only loss found in this system. Losses found in open condensate systems, in traps and boiler feed pumps and pressure reducing devices used in steam heating systems are nonexistent in a hot water system because most of this equipment is not employed. The pipe lines are always full of water and not subjected to any corrosive action. The regulation of the entire plant is much easier and can be performed with much more accuracy. Besides these general advantages there are many others directly related to heating for dyeing and finishing processes.

IN THE DYEHOUSE—Most experienced dyers agree that they can attain better results, clearer colors and more exact shading with indirect heating than with the introducing of steam directly into the dyebath, and thus diluting it by an unknown amount. Condensate introduced into the bath increases the

amount of dyeing liquid and can be considered as waste as it is drained off with the exhausted hot bath. The measurement of the water used for the dye bath is never so exacting that it is necessary to compensate for water lost during the dyeing process due to normal evaporation.

However, large quantities of water when lost have to be substituted by fresh water and the bath kept at the boiling point over a longer period. Such a condition can easily be avoided by keeping the bath at 195 to 200°F. This "trick of the trade" has been known for sometime. Also, it produces equally good dyeing results. Often a temperature of 190°F. suffices for many dyes. The maintenance of an exact temperature over a longer period is rather difficult, if not impossible with direct steam heating. The steam pressure varies to a considerable degree and the commercial steam valves have unequal and steep opening characteristics. Eventually, considerable quantities of steam are lost by passing directly through the liquid, filling the air in the dyehouse with mist and fog.

TO AVOID these shortcomings indirect steam heating has been tried but was abandoned after many unsuccessful attempts because of the use of too low a pressure. Trials have been repeated with steam at higher pressure, but the difficulties experienced with condensate systems, especially with the maintenance of traps, were considered such a drawback that again these tests were abandoned. While the complete elimination of traps was possible using a low pressure, this did not solve the problem.

Application of high-temperature hot-water heating, it is believed, has solved this problem. Medium sized coils are placed in the dye tubs. Hot-water flow is controlled by two valves while the return is controlled by one valve. The coil is divided into two unequal parts, the smaller part is sized, according to the curve shown in Fig. 2, to keep the bath near the boiling point. The combination of both coils serves to reach this temperature in the shortest possible time.

The curve shows the heat required to keep the bath at an even temperature. It indicates the surface loss and the wall loss of the bath tub. The wall loss will vary, depending on the material and the insulation of the walls. The surface loss is based on a 60°F. room temperature and increases considerably with the temperature of the bath. It is, for example, twice as great at 210°F. as it is at 180°F. This fact proves how important it is to maintain the boiling temperature of the dye bath to the lowest possible level. It is obvious that a coil may be sized exactly to maintain a given temperature if the temperature of the heat carried inside the coil is constant and the velocity of the water through the coil is always the same.

Coils must be made of materials which will not influence the dyeing process in any way. Iron and copper should not be used. Monel metal and stainless steel are ideally suited for coils.

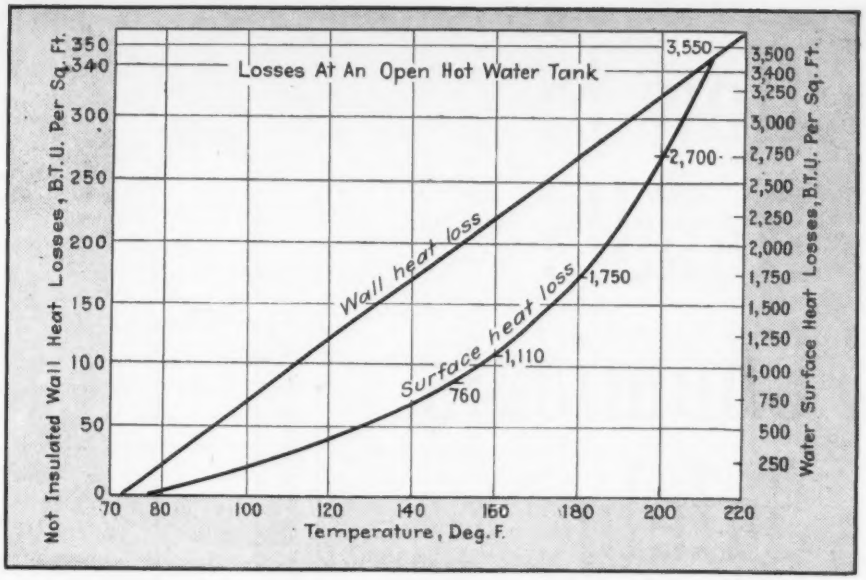


Fig. 2. Charting of losses in open hot water tank aids in sizing heating coils.

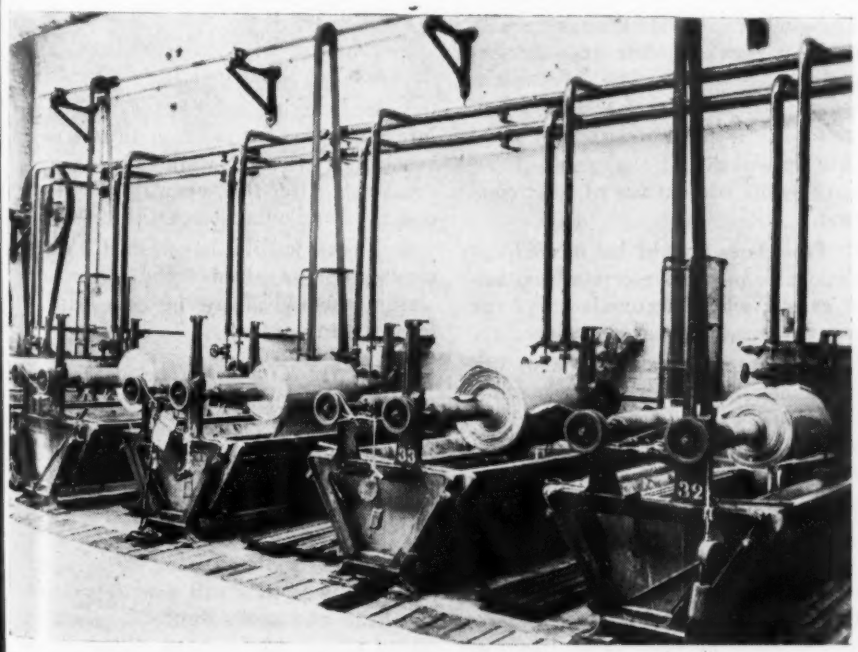


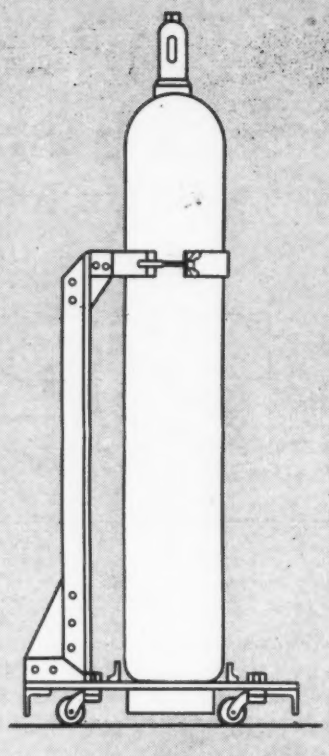
Fig. 1. Application of high-temperature hot-water heating to dye jigs. Note extremely small pipes that are well insulated and the clean installation possible with such a system.

DYE JIGS provided with a single coil are illustrated in Fig. 1. The flow and return pipes, which are clearly visible, are well insulated and overhead, away from the damp floor. Hence they are not exposed to internal or external corrosive action.

The overall efficiency of such a heating system is much higher than that obtained by injecting steam direct into the dyeing bath. Savings of 20% to 30%, it is stated, are being made. Similar advantages are gained by applying the indirect high-temperature hot-water heating, not only to dyeing, but also to all finishing operations, especially to the drying processes and to those processes where it is required to keep water or other liquids, such as starches and bleaching solutions at a predetermined temperature.

How to Handle Chemicals Safely

Precautions to prevent accidents from caustic soda and liquid chlorine



Low-wheel truck for moving chlorine cylinders

MANY OF THE ACCIDENTS which occur in bleaching, dyeing, and finishing plants are due to improper handling of chemicals—either through carelessness or through lack of knowledge. With green help the hazards are greater than with experienced workers. To aid in prevention of such accidents, the National Safety Council has issued a series of safe practice pamphlets and data sheets describing proper procedures for handling various chemicals. The methods described below have been compiled from data given in two of the Council's publications.

Caustic Soda

Hazards. Caustic soda is the most dangerous of all alkalis to handle, as it quickly attacks the flesh and eyes and is deadly if swallowed. Burns by custic soda are generally due to dripping and splashing, or flying particles and dust.

Burns because of dripping and splashing are caused by leaking pipe lines, pumps, and tanks; disconnecting pipe lines or other equipment in making repairs; overflowing tanks; splashing when liquor enters tanks; releasing air from a caustic blow case; or insufficient water in tank when using caustic cakes to make concentrated solutions.

Burns because of flying particles and dust are usually caused by breaking solidified caustic for samples; sweeping and washing floors; or liquid caustic collecting on apparatus, solidifying, and dropping off.

Precautions. The dripping and splashing hazard may be eliminated as follows:

1. Pipe lines should be made up with companion-flanged joints (not flanged unions) and with gaskets of caustic-resistant material fitting inside of bolt circles.

2. Flanges should be screwed on clean threads without use of joint compound.

3. Pipe lines should be washed out occasionally to remove crystallized salt and caustic which accumulate and are likely to cause excessive pressure.

4. Caustic pumps should be of vertical submerged type wherever possible to avoid use of stuffing boxes.

5. Apparatus, such as evaporators, used in handling liquid caustic under pressure should be tested periodically with cold water and under a somewhat greater pressure than that to which it is ordinarily subjected in order to detect leaks.

6. In disconnecting pipe lines or other equipment workmen should operate from above their work whenever it is possible. They should be sure that there is no pressure on the line and that the line has been thoroughly drained before breaking flanges. Where possible, rinse out the pipe with clean water.

7. The valve which controls the line should be closed and a "Man at Work" sign hung upon it until the repairs are completed.

8. Repair men working on caustic lines or equipment should be provided with a pail of clean water, near at hand, for instant use in case the caustic soda gets on a man's clothing or flesh.

9. Tanks must necessarily be provided with large overflow openings near the top. Such openings should be provided with baffle plates installed in such a manner as to prevent floating material from obstructing them.

10. Open-top tanks should also be provided with troughs attached to the outside, near the top, and in such a manner that in case a tank overflows, the liquid will be conveyed to an opening away from passageways and locations where workmen are likely to be.

11. Where blow cases are used for handling caustic solution, proper care should be given the equipment and periodic inspection made of the blow cases, pipe lines, air lines, etc.

12. The air release line for venting a blow case should point neither upward nor horizontally, but should point straight down with the end of the line close to the ground.

13. When using caustic cakes to make concentrated caustic solutions, there should be sufficient water in the tank to prevent the solution from spurting out of the tank.

The hazard of flying particles and dust may be eliminated as follows:

1. In breaking solidified caustic use large hammers on the iron drums and break the contents while still in the container. After this, open the containers, and handle the pieces with a shovel.

2. Floors should be washed rather than swept, to avoid flying dust. The washing should always be done with a hose stream.

Protective Clothing. The hazard of caustic burns can be decreased if men wear protective clothing. Cotton clothing will withstand the action of caustic soda better than wool, and trousers and shirts of cotton should be used entirely. However, as an added precaution it is well to wear rubber aprons. Wearing of wide-brimmed hats will tend to protect the head and neck. Rubber shoes and heavy rubber gloves used, rather than leather ones. Trousers should be worn with the bottoms of the legs outside of boots or shoes. Shirts should have long

sleeves and should fasten tightly about the neck. Men handling caustic soda should wear suitable respirators or protective hoods. Suitable goggles should be worn.

Treatment of Burns. Should caustic soda in liquid form be spilled on a man's clothing, the clothing at this point should be immediately cut away and cold water instantly applied in liberal quantities.

Should caustic soda, solid or liquid, come into contact with the flesh or eyes, the injured part should at once be flushed with plenty of clean water. A plentiful supply of fresh clean water should always be readily accessible. Some plants use a 2% solution of acetic acid to neutralize caustic burns of the flesh and ½ of 1% solution of acetic acid for burns of the eyes after they have been thoroughly flushed with clean water.

After flushing with water and chemical neutralization, expert medical attention should be provided promptly.

Chlorine

Hazards. Physiologically, chlorine is a skin, mucous membrane, and respiratory irritant. Exposure of the body to 2% of chlorine in the air for 10 to 20 min. will cause marked irritation and blistering of the exposed areas. In sufficiently high concentration the gas may cause death. The greatest danger from chlorine occurs where there is a sudden exposure to a concentration, such as may occur from a broken valve or pipe.

Precautions. A sufficient number of gas masks of a type approved by the U. S. Bureau of Mines should be on hand, located at readily accessible points outside of the area likely to be affected in cause of an accident. The instructions accompanying a mask, concerning its care and use, should be followed implicitly. Everyone who is in danger of being accidentally exposed to high concentrations of chlorine should be provided with an individual gas mask. He should be trained to put the mask on quickly and properly.

Every container holding chlorine, either gas or liquid, presents a hazard, and it must be handled with care. The Chlorine Institute recommends that the following precautions:

1. Neither drop containers nor permit them to strike each other violently.

2. Never use a lifting magnet or a sling (rope or chain) when handling containers. Avoid hoisting as much as practical, low rubber-tired or jack trucks being preferable. Where hoisting is necessary, use safe lifting clamps.

3. Before returning empty chlorine containers, close their valves and test for chlorine leaks at the valve outlets by applying an ammonia water soaked rag attached to the end of a stick of considerable length. Formation of a white smoke-like cloud will result if there is any chlorine gas leakage. If no leakage is indicated, apply cap nuts to valve outlets and attach valve protection housings or caps securely in their proper places.

4. Never use containers as rollers, supports, or for any purpose other than to contain chlorine.

5. Never tamper with the safety devices in the valves of cylinders.

6. Open container valves slowly. Use of large wrenches or pipe wrenches may damage the valves.

7. Make sure that the threads on regulators and unions are the same as those on the container valve outlets. Never force connections that do not fit.

8. Containers or valves should never be repaired or altered by the consumer; the owner only should undertake this work. Telephone the owner for assistance in an emergency.

9. All containers should be protected against excessive rise of temperature. During winter, containers stored in the open should be protected against accumulations of ice and snow. In summer, containers stored in the open should be screened against continuous direct rays of the sun.

10. Never store containers near highly flammable substances, such as oil, gasoline, or waste.

11. When practicable, do not store containers where they are exposed to continuous dampness.

12. Store full and empty containers in different places to avoid confusion in handling them.

13. Do not store containers near elevators or gangways or in locations where heavy objects may fall or strike on them.

14. If it becomes necessary to warm a container, use great care because of the low fusion point (157°F.) of the safety plugs in the valves of the cylinders and in the heads of the ton containers. The valves should never be heated.

15. Containers should be stored in an upright position, thus keeping the liquid away from the valve. (One-ton containers are usually stored horizontally because of the difficulty of handling them in an upright position.)

16. Special precautions should be observed in handling tank cars of liquid chlorine, and the recommended methods of the Chlorine Institute followed.

Emergency Measures. How to handle chlorine leaks:

1. Keep on windward side of leak.

2. If leakage is extensive, promptly warn all persons in the path of the fumes to move to a safer location.

3. Use hose to spray water freely under slight pressure on the escaping liquid.

4. If tank is punctured above the liquid, the gas will escape, and as water applied to gas leakage is not effective, the tank should be turned over to bring point of leakage below the level of the liquid. Leakage of liquid can then be retarded by the use of water.

5. If water is not immediately available, dig a trench to draw off the liquid to a lower spot, the object being to reduce the area of the surface of liquid from which evaporation takes place. Loose earth; cement; lime, either fresh or slaked; and textiles, wet or dry, especially bagging and felt, thrown on the liquid at once will act as an absorbent or blanket and effectively retard evaporation.

6. When attempting to plug a leak in any manner, hands and body should be protected against the escaping chlorine by the use of thick, loose-fitting gloves and a long apron of leather or similar non-porous material.

7. In a severe fire, leakage should not be serious, as the gas will be carried upward and dissipated with the products of combustion. If the container is not leaking, every effort should be made to extinguish the fire.

8. When a pond or large body of water is nearby, the leaking tank should be entirely submerged; otherwise, if possible, tank should be moved to a point where escaping vapor will be carried by the wind away from the railroad yard or right-of-way and adjacent occupied buildings.

Treatment of a person affected by chlorine gas.

1. Remove at once to open air and away from all gas fumes.

2. Place patient flat on back with head slightly elevated. (National Safety Council Note: Patient should be kept warm. Do not exercise or excite him.)

3. If patient is not unconscious, give ½ teaspoonful essence of peppermint or a moderate dose of bromo-seltzer or a moderate stimulant. NEVER ADMINISTER MILK.

4. The person affected should resist as much as possible the impulse to cough.

5. A physician should always be called.

6. If patient is unconscious and not breathing, use prone pressure method of producing artificial respiration.

Blending Room Reorganization

Increases production and also eliminates overtime work and extra shift operation

By GEORGE WAKEFIELD

MANY SMALL WOOLEN MILLS, previous to the war, were engaged in manufacturing a large variety of blended yarns and fabrics for the domestic trade. These mills are now mostly, if not entirely, on defense work that necessitates the production of only one or two blends and a corresponding reduction in types of woven fabrics. Before the war it was unusual to find in a mill weave shed an appreciable number of looms producing the same cloth. And, with the attendant frequency of gear changing, drawing-in, chain-making, etc., a fair amount of time was lost in non-production. Such unavoidable losses entailed in the manufacture of multifarious types of fabrics are, generally speaking, common throughout other departments of the mill, that is, in blending, carding, spinning, and finishing, because these departments are adjusted to meet the needs and production of the weave-shed.

In the production of a large variety of small blends, stoppage of the blending machinery is usual for the following reasons; namely,

1. Frequent cleaning of the machines are necessary because blends of widely different colors and qualities follow each other through the machines at short intervals.

2. Waiting for a handful of each blend to be put through the sample machine and matched to the standard.

3. Waiting for the blends to be weighed out and thrown together.

Layout of the blending room in mills making many blends is often in the form shown in Fig. 1; that is, two rooms work quite independently of each other. Room A is always on colors while Room B always operates on various qualities of white blends. This separation is necessary in order to obviate colored fibers getting into white blends.

Under wartime conditions almost every loom is weaving the same type of fabric. The changing of gears, reeds, chain patterns, etc., is practically non-existent; a much larger consumption of warp and filling yarns is required than the blending department ordinarily can cope with. True, there will be a saving of blending time through being able to put down large blends, but through experience it is found that the net result is inability of the blending room to meet the demand for blends. The results are overtime and even extra shifts.

Reorganization of the blending room will eliminate overtime and extra shifts. For example, in the blending rooms shown in Fig. 1 the Fearnought is only in actual operation for about 50% of the working day. Remaining time is accounted by waiting for the mix to be weighed out and layed down. The aim, therefore, should be to increase the percentage of working hours actually run by the Fearnought. This can be accomplished by constructing one large blending room out of the two rooms. The new layout is represented in Fig. 2 where the dividing wall has been taken away and, if necessary, pillars installed for support.

Assume that two runs through the Fearnought are sufficient to obtain adequate mixing, then the method of procedure would then be as follows:

Step 1. Blends *A* and B_1, Fig. 3, has been through No. 1 Fearnought and are now running through No. 2 Fearnought. Blend *B* is put through No. 1 Fearnought and stacked at B_1 to await its turn through No. 2 Fearnought. Blend *C* is a new blend being weighed out and thrown together for passing through No. 1 Fearnought immediately after blend *B* has been run.

Step 2. Blend *A* has been blown to the card room, blend *B*, Fig. 4, is run through No. 2 Fearnought. Blend *C* is run through No. 1 Fearnought and stacked at C_1 to await its turn through No. 2 Fearnought immediately following blend *B*. Blend *D* is a new blend being layed down and will be run through No. 1 Fearnought when blend *C* has been run.

Following the complete cycle and by working along these lines, the writer states that the Fearnought machines will operate with at least an 85% efficiency.

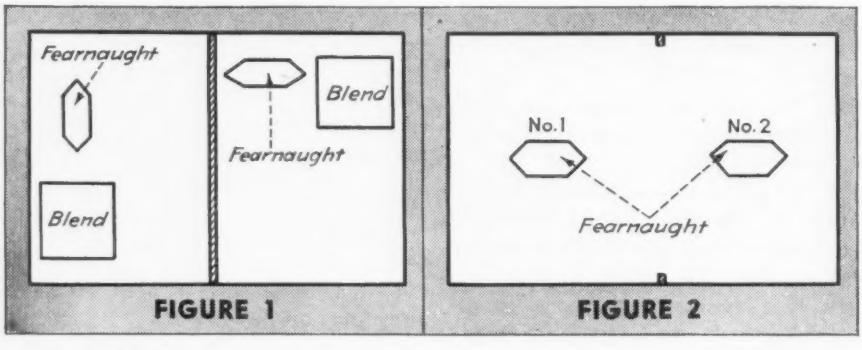
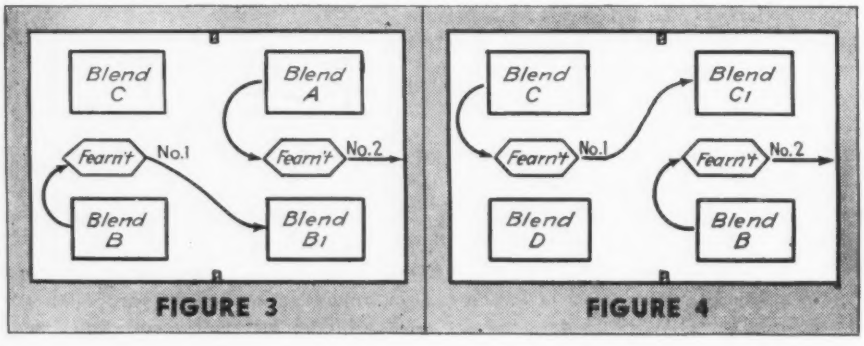
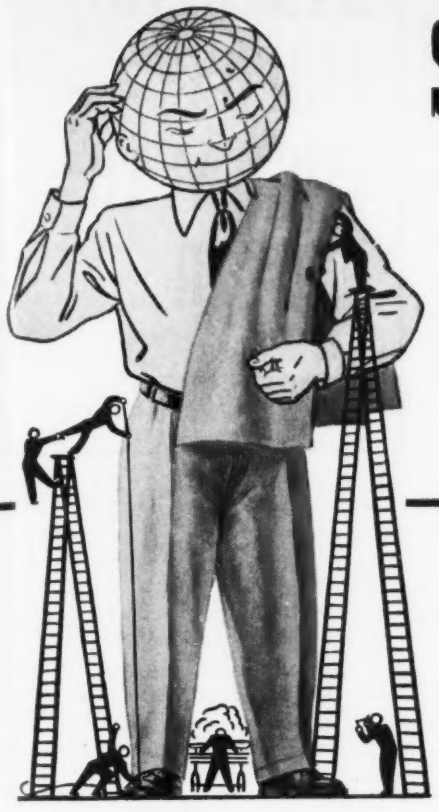


Fig. 1. Blending room of small woolen mill permits Fearnought to run only after the blends have been made. **Fig. 2.** Reorganized blending room with wall removed permits pickers to operate as a team. **Fig. 3.** First step in running a number of different blends for military fabrics through the blending room. **Fig. 4.** Second step with both Fearnoughts in operation on different blends for military fabrics.





SYNTHETIC FIBERS for the POST-WAR WORLD

will be tailor-made to fit specific requirements

NINETEENTH ANNUAL SYNTHETIC FIBER SECTION

By
DOUGLAS G. WOOLF
and
WINN W. CHASE

THERE ARE NOW three fronts in the Battle of the Synthetics. For years there was just one front: synthetic vs. natural fibers. Immediately prewar, a new front was developing: synthetics vs. synthetics, an intra-industry competition. This front will be the major battle-ground post-war. A third front is just looming up: completely synthetic fabrics vs. fabrics made by old-school methods. The potential implications of this third front are staggering to the imagination.

But so is this whole question of the synthetics of the future staggering, indefinable, unpredictable.

Before we even approach this mine-laden battleground, we should make a few things clear: (1) We hold no brief for natural vs. synthetic fibers, or vice-versa; (2) we hold no brief for one type of synthetic vs. another; (3) we hold no brief for woven fabrics vs. synthetic fabrics, or vice versa. The only brief we hold is for a completely objective viewpoint on this question of the fibers of the post-war era.

With that as a springboard, let's look things over.

THIS MUCH IS CERTAIN: There will be nothing accidental about the synthetics of the future. They will be tailor-made to fit specific requirements. The life-long dream of many a textile man will become a reality. There will be a straight line from here to there: "here" being the properties which are desired, and "there" being production of fibers possessing those properties.

This achievement has been in the making for a quarter of a century. From the time when "artificial silk" first emerged from its obscurity in the zone of soluble sweaters and neckties; through the first years of the initial rayon impetus following World War I; during developments of various types of rayons possessing different tensile strengths, different degrees of brightness and dullness; and then during those years immediately preceding World War II when the first completely synthetic fibers made their appearance—this inevitable goal of the molding of synthetics to fit man's desires became increasingly apparent.

The goal has not yet been reached, but long strides have been taken toward it. By modifications in production methods, it is already possible to obtain viscose, acetate, Nylon, Vinyon, Saran, Velon, etc., with widely different characteristics within each of these types. For example, there is already a range in viscose yarn alone between a dry tensile strength of 1.5 to 3.6 grams per denier, and a range in elongation from 9% to 30%, the lower tensile strength and higher elongation being characteristics of the ordinary viscose yarn and the higher strength and lower elongation being characteristics of the high-strength viscose yarn. Similarly, the ordinary type of Vinyon has an elongation of 11%, while the recently developed Vinyon E has an elongation ranging from 150 to 400%.

This is only the beginning. By selection of raw materials and production methods, new synthetics having almost any property desired in a textile can be made. These possibilities are not limited to development within any one type of yarn. For example, mixing of plastics is possible when one plastic alone will not give the properties desired. To cite just one case, nitrocellulose and ethyl cellulose are now mixed to produce a particular type of fabric coating. The same flexibility of raw material source and of process is possible all through the synthetic fiber field.

This vision was well expressed recently by Dr. Edward R. Schwarz, of M. I. T., who said:

"Modern textile research should determine the fundamental properties of fabrics which will best serve specific uses—the optimum yarn structure to achieve these ends and the proper fiber structure to produce such yarn. Having this information, the parallel researches on fiber structure will give in combination the necessary information to engineer filaments of such molecular design as to function efficiently in the desired fashion."

The same thought was expressed by Dr. Harold De Witt Smith, of A. M. Tenney Associates, who stated:

"You are entering an era in which textile fibers will be 'made-to-order' to suit particular needs and purposes. One of the principal tasks which you have before you is to work with the research physicists and the rayon chemists to determine the properties desired in a fiber for a specific use."

IT IS THIS CHARACTERISTIC of versatility and conformability which has enabled synthetics to take the offensive on the first of the three battlefronts enumerated above: that of synthetic vs. natural fibers. The basis of this thought was well expressed by Dr. Schwarz, from whom we again quote:

"It is being realized that the common

SYNTHETIC FIBERS for the POST-WAR WORLD

NINETEENTH ANNUAL SYNTHETIC FIBER SECTION

and widely-used natural textile fibers were not designed by nature for spinning into yarn nor for conversion into fabrics. Man has turned them to his use in this fashion and has engineered his machinery and methods to deal with them as he found them. It is true that by careful selection, cultivation and breeding, he has improved their uniformity and quality, but these results are largely statistical and take the form of more perfectly controlled frequency distribution of such properties as length, diameter, color and strength."

It is also true that even more fundamental changes have been under way, through research, in the properties of the natural fibers. An outstanding example is the modification of the molecular structure of wool, rendering the fibers resistant to damage by moths, alkali and acid. Another significant development in natural fibers is the modification of the manufacturing process whereby tire cords are made with higher density and better heat resistance.

However, it is apparent to any objective student of this problem of natural vs. synthetic fibers that the conformability of the former is limited by certain fairly rigid structural characteristics, while the conformability of the latter is limited only by the degree of imagination and knowledge of the chemist and physicist working together.

ON THE SECOND BATTLEFRONT that of synthetics vs. synthetics, it is equally easily apparent that the relatively new, completely synthetic fibers — such as Nylon, Vinyon, etc. — have in turn a more unlimited conformability than have the group of regenerated natural fibers—such as viscose, cuprammonium, acetate, casein fiber, etc. That leads to the conclusion that, in the long run, the former group will prove to be more important than the latter group.

However, as against that long-range view, there is the more immediate question of the relative standing of the various synthetics post-war. There is no nearby prospect of the elimination of one group by the other. Here is what the picture will be, roughly: There will be released for civilian purposes large quantities of synthetics of all types: viscose, acetate, high-strength viscose, high-strength acetate, Nylon, Vinyon, Vinyon E, Saran or Velon, Fiberglas, etc. In addition, new synthetics, now in the experimental or hush-hush stage, will be introduced, as fast as manufacturing facilities can be increased and as the market can absorb them. Here, as in the case of automobiles, it is probably true that what might be called the 1942 models in synthetics will occupy the center of the stage during the immediate post-war years.

The first military engagements on the second battlefront—that of synthetics vs. synthetics—will take the form of a series of skirmishes between various fibers in attempts to capture specific markets. For example, Nylon, high-strength viscose and high-strength acetate and Vinyon will engage in a free-for-all in the full-fashioned hosiery field. Nylon and high-strength viscose will do battle for supremacy in production of tire cords. Nylon will compete with Saran or Velon for window screens and upholstery.

It is inevitable that some fibers will be used for a time in applications for which others are better suited. Gradually, however, the synthetics available at the end of the war will fall into their proper niches. But even then there will be intra-industry competition in some markets, because for certain purposes no one synthetic will be definitely superior to others.

Over and above this competition between types of synthetics, there will be an over-all expansion in the total production of synthetic fibers. There will be continuous improvements on synthetics now in use, and there will be the birth of new types of synthetics which as yet have not even been conceived.

Obviously, not all the old, the new, and the still unborn synthetics will survive. After the first post-war bulge when probably anything which can be made into fabrics will be in full demand to satisfy a war-starved civilian appetite, the situation will shake itself down into a real competitive struggle. In recent years there has been a tendency to experiment with everything that grows in the air, on the ground and under the sea as raw material for synthetic fibers. Some of these experiments died in the laboratory, and got a humorous one-line obituary. Others made a certain amount of headway. Of the latter, many probably will not have much of a future in the real post-war battle. For example, without prejudice but completely objectively, it is difficult to see a broad market ahead for fibers made from soy beans, peanuts, seaweed, and possibly even casein. (Of course any one of these may stump the experts and force us to eat these words in a later issue.)

On the most important battle line of the second front, cellulose derivatives vs. completely synthetic fibers, to which we referred above, there seems every reason to believe that the former will continue important for many years to come, and that the production of these will expand for at least a few years after the war, in line with our previous indication of an over-all expansion of total synthetic fiber production.

In addition, there is no doubt that other cellulose derivatives will be brought out; for example, ethyl cellulose is now in the experimental stage. Also, just before the war modified viscose rayons were produced in Europe by incorporating resins or caseins in the spinning solution. The resulting fibers are similar to wool in dyeing properties. The indication is that their use is probably limited.

Generally speaking, it is apparent that the regenerated cellulose field has not lost its attractiveness to either the research man or the entrepreneur. But, again, it must be emphasized that for the long run the completely synthetic fibers loom up as the more important of the two groups.

THERE IS ANOTHER important battle line on this second battlefront: namely, rayon staple vs. continuous filament. There has always been room for plenty of argument on this score. One group has felt that rayon staple would go sharply ahead at the expense of continuous filament. Certainly, the statistics of recent years show a larger *percentage* growth in the output of the former than that of the latter. There is every indication that rayon staple fiber will be increasingly important in at least the first few years of the post-war era. Eventually, it would seem probable that the tow-to-top method, or some other short-cut method, might eliminate cut staple as now produced.

In this connection, it must be emphasized that the long-run future of rayon staple is tied up with the battle on the third front: that of completely synthetic fabrics vs. fabrics made by old-school methods. Obviously, if standard textile equipment became ultimately a casualty to any considerable degree, the extent to which the chopping up of fibers would be necessary would decrease. This third front will be discussed a little later on in this article.

Among the many other complex

problems involved in the whole second front battle, at least two more require reference here. Synthetic rubber threads or yarns will probably replace, at least in part, cut rubber and extruded latex threads. Also, plastic coated yarns are likely to be of tremendous importance in the post-war era. They are now being produced by one company and other companies are working on them. By having a core of cotton, rayon, Fiberglas, etc., and a coating of any one (or a combination) of 25 to 50 plastics, it is possible to produce practically any strength, flexibility, or elasticity desired.

Finally, in connection with this second front, it is necessary to get an over-all picture of the uses for synthetics in the post-war era. The major use for rayon in the pre-war era was in apparel fabrics—woven and knitted, outerwear, underwear, seamless hoisery, etc. The major use for Nylons was in full-fashioned hosiery. Some rayon was used in household fabrics. With the advent of high-strength rayon, a limited number of industrial uses was developed. Fiberglas was employed chiefly in industrial fabrics, but was gaining favor for household uses. Vinyon was used mainly for industrial fabrics.

In the post-war era, synthetics will still be widely used in apparel fabrics. This applies to both continuous filament and spun yarns. It is probable that high-strength rayon will gradually supersede regular rayon for most purposes, although the latter can continue to hold its own in uses where durability is not an important factor. Spun yarns should become more important in outerwear, both woven and knitted. Improved crease-resistant, water-repellent, and other special finishes will be applied. Synthetics may become important in duplex fabrics. Use of continuous filament synthetics for household fabrics should greatly increase. Many of these fabrics will be given coated or other special finishes. Spun yarns made from staple fiber, or by tow-to-top, or other short-cut methods, are likely to be used in large quantities in pile fabrics for floor coverings, upholstery, etc., and blankets.

Use of synthetics in industrial fabrics is bound to increase greatly. Tire cords, cords for conveyor belts, filter cloth, window screening, felts, cordage, fish lines, seines, sails, shoe cloths, book cloths, electrical insulation, awnings, parachute cloth, are only a few of the applications coming in the post-war era. Laminated plastics represent another industrial use ahead; a case in point is the recent development of a laminated fabric consisting of Fiberglas and synthetic resins, as described in a previous issue of this publication. Incomplete as this list is, it can be seen that there is work ahead for synthetics.

NOW FOR THE THIRD FRONT — synthetic fabrics vs. those made by old-school methods. This is the most difficult of all three fronts to appraise, and the most delicate to discuss. It is difficult to appraise because developments to date have been minor, when related to the whole textile picture. Sheet plastics have competed with woven textiles for various purposes, such as rain coats, shower curtains, unbrella cloth, etc. Predicting the extent to which these few actualities may be trends pointing to large-scale production of fabrics without benefit of the spinning frame, the loom, or the knitting machine, is hazardous.

The subject is delicate to discuss, because in it are involved so many prejudices. The huge investment in standard equipment now in place in thousands of textile mills in this country makes the owners of that equipment prejudiced parties—and quite understandably so. As a result, any talk of by-passing the spinning frame and the loom is apt to be decried as fantastic. It is pointed out that our present textile processes stem from antiquity, and that their transformation from hand to power operation marked the beginning of the industrial revolution from which all our great industrial structure has been derived.

The weakness in this defense is twofold: first, that antiquity of industrial processes is more often a liability than an asset; and, second, that the beneficiaries of one revolution are too apt to ignore the possibilities of another revolution which might create an entirely new set of beneficiaries.

The defenders of status quo forget that most of our so-called modern textile processes are merely mechanical simulations of primitive methods, and that the pioneer who tries to find the shortest distance between two points —that is, between the raw material and the finished product—might find gold in them thar hills. Particularly, if the raw material could be compounded from such primary sources as coal, air and water, and if the finished product could be moulded automatically to meet any specifications set by man's desire.

Finally, the defenders of status quo fall back on a further rationalization: that the hygienic requirements for textiles demand interstices or air vents, and that such requirements can be met by the products of the loom and the knitting machine, but not by synthetic fabrics in sheet form. The fallacy of this argument is, first, that it ignores the great fields of industrial and household fabrics which have no such demands as have fabrics for apparel purposes; and, second, that there is no limitation to the ingenuity of the scientist which would prevent the adaptation of completely synthetic fabrics to meet such requirements.

The answer of course, lies in the zone of research. To date, the research activities of the synthetic-fiber producers have tended to expand rather than to contract the market for the products of most spinning, weaving and knitting mills, with relatively few exceptions. That such a beneficent end-result of this type of research will continue indefinitely post-war is extremely questionable.

Let us make this point clear: We are not inferring that textile manufacturers should sell their standard equipment short; nor that textile machinery manufacturers should stop the production of such equipment. On the contrary, there is every present indication that the output of all machines in place will find a ready market, post-war, to fill long dammed-up civilian needs, and to meet Lend-Lease and other demands which peace will entail. Also, there is every present indication that textile machinery manufacturers will be hard put to meet the post-war demands for replacement and modernization of existing equipment both in this country and abroad, and for expansion in newly industrialized areas in South America, China, etc.

But beyond that immediate post-war demand, there looms the possibility of a fourth battle-front: research vs. research. Research in one textile industry vs. research in another textile industry. Research in the textile industry vs. research in other industries (such as paper, for example) clamoring for their share of the textile pie. Research in the textile industry vs. research in other industries (the construction industry, for example) in whose pie textile manufacturers want a share.

What it comes down to is that every textile manufacturer must regard research, not as a form of insurance for his investment in a certain type of equipment or in a background of processing a certain fiber, but rather as a form of insurance for his continuation in business as a textile manufacturer, on a profitable basis.

SYNTHETICS, POST-WAR, may be one man's meat and another man's poison. They will be poison to the textile manufacturer whose mind is closed to their implications. They will be meat to the textile manufacturer who is alert to the possibilities, *for him*, of an increasingly synthetic era.

PROPERTIES OF SYNTHETIC FIBERS

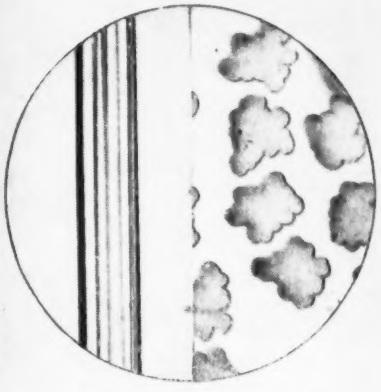
Charts to aid textile men in choice of synthetics for specific applications

HOW STRONG IS IT? Does it have sufficient elasticity? Is it resistant to acids, alkalis, moths, and mildew? Can it be dyed and printed? The answers to these and similar questions determine the suitability of a synthetic yarn or fiber for any specific application. This is true today of textiles for military use. It will be true in the post-war era of textiles for apparel, household, and industrial use. Eight types of synthetic fibers are now commercially available in this country—viscose rayon, cuprammonium rayon, acetate rayon, Nylon, Vinyon, vinylidene chloride, casein, and Fiberglas. Data on the properties of each of these fibers have been compiled by the editors of TEXTILE WORLD from authoritative sources and are presented in the following charts in a form which permits ready reference and comparison. Values for physical properties given are typical for each type of fiber, but vary according to brand and in same brand depending on denier, luster, test procedure, etc. Several other types of synthetic fibers are now in the experimental or development stage. Production of other types has been suspended for the duration of the war. Still other types are being produced in Europe, but are not generally available in this country. The major characteristics of these fibers are listed below. Data are given also on the recently introduced plastic-coated yarns, which in some respects are comparable with synthetic yarns. Photomicrographs were prepared for TEXTILE WORLD by the Wm. M. Grosvenor Laboratories, Inc., New York.

Fiber	*Manufacture*	*Properties*	*Uses*
MODIFIED CELLULOSE FIBERS	Made in Europe by incorporating resin or casein in the viscose spinning solution. Courtaulds, Ltd., makes two types called Rayolanda X and Rayolanda WD.	In form of staple fiber has a wool-like handle. Can be dyed with various dyes used for wool and viscose rayon.	Used mainly for blending with wool.
ETHYL CELLULOSE	Produced experimentally by Dow Chemical Co. under trade name Ethoraon.	Said to have good flexibility, toughness, low moisture absorbency.	Still in experimental stage.
CELLULOSE ACETATE BUTYRATE	Was made in form of monofilaments by Erie Resistor Co., Pierce Plastics, Inc., and Rex Co.: production has been suspended because of the war.	In general, resembles cellulose acetate in its properties, but differs in details: has low water absorbency and good dimensional stability.	Was employed to limited extent in cords and woven fabrics.
SOY BEAN FIBER	Derived from soy beans by extracting protein, dissolving, extruding, treating chemically, cutting into staple fibers. Was made by Ford Motor Co. but production now suspended: produced experimentally by Glidden Co.	Tensile strength about 80% that of wool: elongation dry 40%; wet 60%; in general, resembles casein fiber, but differs in some details.	Suggested uses include blending with wool for upholstery, suitings, and felt.
PEANUT PROTEIN FIBERS	Produced experimentally in Europe by Imperial Chemical Industries, Ltd.	Resembles casein and soy bean fibers in general properties, but differs in details.	Used experimentally in blends with wool.
CORN MEAL FIBERS	Produced experimentally by Corn Products Refining Co. from zein, a derivative of corn meal, by extruding zein solution through spinnerets into a coagulating bath while simultaneously contacting the zein with an aldehyde.	According to the patent specifications, zein fibers have satisfactory elasticity and resilience, and wet strength, elastic recovery, and abrasion resistance are superior to synthetic fibers derived from cellulose.	Still in experimental stage.
ALGINATE FIBERS	Produced by extruding sodium alginate solution through spinnerets into solution of beryllium sulphate or other chemicals.	Various alginates differ in their properties. Several said to have good resistance to mildew. Beryllium alginate said to be resistant to alkalis.	Used experimentally for garnishing camouflage netting and other purposes.
SYNTHETIC RUBBER YARNS	Several types have been produced experimentally. One type is produced commercially by B. F. Goodrich Co., under trade name Ameripol: another by United States Rubber Co.	High elasticity is outstanding characteristic cited to date.	Elastic textiles for military purposes: experimentally for civilian purposes.
PLASTIC COATED YARNS	Produced by coating cotton, rayon, or other yarns with cellulose acetate, cellulose acetate butyrate, or other plastic. Made by Freyberg Bros.-Strauss, Inc., under trade name Plexon.	Tensile strength, elasticity, etc., depend on core yarn and plastic used and number of coats applied. Some types are waterproof, flameproof, mildewproof. Sizes from 0.008 to 0.03 in. diameter.	Electrical insulation, window screening, webbing, shoe fabrics, conveyor belts, sieves, cords.

VISCOSE RAYON

Microscopic Appearance



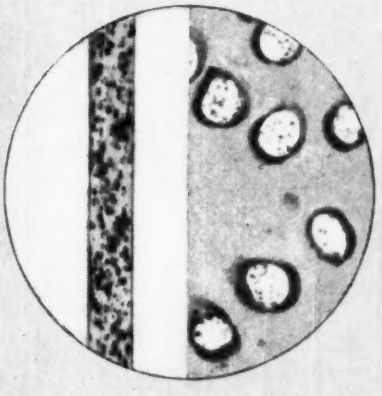
BRIGHT VISCOSE RAYON (500x)—left, longitudinal; right, cross-section.

Manufacture	*Tensile Strength*	*Elongation at Break*	*Elastic Recovery*	*Linear Change*	*Specific Gravity*
Viscose rayon is a regenerated cellulose obtained by treating wood pulp or cotton linters with caustic soda and carbon bisulphide; extruding the cellulose xanthate dissolved in caustic soda through spinnerets into a coagulating bath; and desulphurizing, washing, and bleaching the filaments. Modification of the spinning process employed in the manufacture of viscose rayon permits production of yarns having a higher tenacity strength, both dry and wet, than is obtained by the usual methods. Spinning conditions, such as amount of stretch applied to the filaments while they are in a plastic state, can be controlled to give any desired tensile strength and elongation over a fairly wide range.	Regular Type—Dry: 1.5–2 g.p.d.; Wet: 0.7–1 g.p.d. High Tenacity—Dry: 3–3 6 g.p.d.; Wet: 1.9–2.2 g.p.d.	Regular Type—Dry: 15–30% (at 65% r.h.); Wet: 20–35%. High Tenacity—Dry: 9–17% (at 65% r.h.); Wet: 14–20%.	74% at 4% stretch, 58% at 14% stretch.	———	1.52

Note: ***Values for physical properties given are typical for each type of fibe***

CUPRAMMONIUM RAYON

Microscopic Appearance



SEMI-DULL CUPRAMMONIUM RAYON (500x)—left, longitudinal; right, cross-section.

Manufacture	*Tensile Strength*	*Elongation at Break*	*Elastic Recovery*	*Linear Change*	*Specific Gravity*
Cuprammonium rayon is made by dissolving purified cotton linters or specially prepared wood pulp in ammoniacal copper hydroxide solution, extruding through a spinneret into an acid coagulating bath, and washing. Some cuprammonium rayon is spun by a continuous spinning process, but by far the greater percentage of it is produced by a stretch spinning process.	Dry: 1.7–2.3 g.p.d.; Wet: 0.95–1.25 g.p.d.	Dry: 10–17% (at 65% r.h.) Wet: 17–33%.	———	———	1.54

Note: ***Values for physical properties given are typical, but vary, dependin***

Regain	Total Water Absorbency	Dielectric Strength	Burning Rate	Resistance to Heat	Softening Point	Effect of Age	Effect of Sunlight	Effect of Acids	Effect of Alkalis	Effect of Other Chemicals	Solubility in Organic Solvents
11% at 70°F. and 65% r.h. (A.S.T.M. Standard)	100–125%	Fair when dry.	Fast.	Decomposes rapidly at temperature above 300°F. and at lower temperatures upon prolonged exposure.	Decomposes without melting	Slight.	Loses tensile strength on prolonged exposure.	Acids have a similar effect on viscose rayon as on cotton; e.g., treatment in dilute solutions of weak acids, such as acetic, has little or no effect. Like cotton, viscose rayon has an affinity for tannic acid. Hot dilute solutions or cold concentrated solutions of strong acids such as sulphuric, attack and disintegrate viscose rayon.	Dilute solutions of weak alkalis have little effect. Strong alkalis, such as concentrated solutions of caustic soda, cause swelling and loss of tensile strength.	Attacked by strong oxidizing agents. Not damaged by hypochlorite or peroxide bleaching solutions under normal conditions of use. Swells in water.	Insoluble; soluble in cuprammonium solution and some other compounds.

but vary according to brand and in same brand depending on denier, luster, test procedure, etc.

Regain	Total Water Absorbency	Dielectric Strength	Burning Rate	Resistance to Heat	Softening Point	Effect of Age	Effect of Sunlight	Effect of Acids	Effect of Alkalis	Effect of Other Chemicals	Solubility in Organic Solvents
11% at 70°F. and 65% r.h. (A.S.T.M. Standard)	100–125%	Fair when dry.	Fast	Decomposes rapidly at temperatures above 300°F. and at lower temperatures upon prolonged exposure.	Decomposes without melting.	Slight.	Loses tensile strength on prolonged exposure.	Acids have a similar effect on cuprammonium rayon as on viscose rayon; e.g. treatment in dilute solutions of weak acids, such as acetic, has little or no effect. Like viscose rayon, cuprammonium rayon has an affinity for tannic acid. Hot dilute solutions or cold concentrated solutions of strong acids. such as sulphuric, attack and disintegrate it.	Dilute solutions of weak alkalis have little effect. Strong alkalis, such as concentrated solutions of caustic soda, cause swelling and loss of tensile strength.	Attacked by strong oxidizing agents. Not damaged by hypochlorite or peroxide bleaching solutions under normal conditions of use. Swells in water.	Insoluble; soluble in cuprammonium solution and some other compounds.

on method of manufacture, denier, luster, test procedure, etc.

VISCOSE RAYON

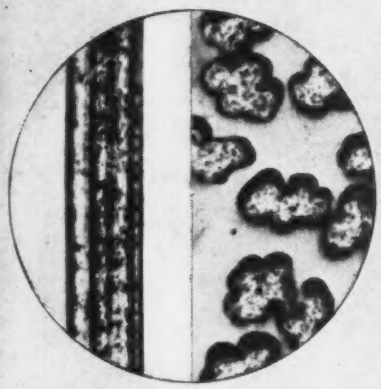
lubility in rganic olvents	Affinity for Dyes	Resistance to Moths	Resistance to Mildew	Types and Sizes	Uses	Manufacturers and Trade-Names
uble; soln cu- mmonium ion and other pounds.	Has an affinity for the same classes of dyes used for dyeing cotton; some special level-dyeing substantive dyes have been developed for viscose rayon.	Wholly resistant.	Attacked	Continuous multi-filament yarns 40 to 1150 den. with 14 to 490 filaments; bright, dull and semi dull; undyed and spun-dyed in limited range of shades. Tow containing several thousand continuous filaments for producing spun yarns by so-called "tow-to-top" processes Staple fiber 1¼ to 20 den. in lengths of 1 to 5 in.; bright and dull lusters; undyed and spun dyed in limited range of shades	Continuous-filament, regular-strength yarn is particularly suitable where high strength and elasticity are not important and where ability to take a high twist is desirable. Military uses include banners, tape, underwear for WACS, linings, insignia. Civilian uses include a wide variety of woven and knitted fabrics for apparel and household use. Continuous-filament, high-tenacity yarn is particularly suitable where high strength is needed. Military uses include tire cord, parachute cloth of various types, shroud lines, tow targets, etc. Potential post-war uses include full-fashioned and seamless hosiery, sports clothes, shirtings, towelings, draperies, football uniforms, sail cloth, filter fabrics, belting, and covering for elastic yarns. Viscose rayon staple fiber, alone or blended with other fibers, is used for such purposes as dress goods, sportwear, suitings, overcoatings, blankets, upholstery, carpets, and rugs.	*American Enka Corp.*—Perlglo, Briglo, Englo, Tempra (high tenacity), Vitala (high tenacity). *American Viscose Corp.*—Crown (general name for all Viscose products) Dulescco, Chalkelle, Tenasco (high-tenacity), Rayflex (high-tenacity). Fibro (staple fiber), Avisco (high-tenacity staples fiber), Avricon (crimped staple fiber), *Delaware Rayon Corp.*—Delray. *E. I. du Pont de Nemours & Co., Inc., Rayon Division*—DuPont Rayon, Cordura (high-tenacity). *Hartford Rayon Corp.*—Hartford. *Industrial Rayon Corp.*—Spun Lo, Premier, Dul-Tone; Spun-Black, Tyron (high-tenacity). *National Rayon Co.*—National. *New Bedford Rayon Corp.*—Newbray, Newlow, Newdull. *North American Rayon Corp.*—North American, Xtra-Dul, Supernarco (high-tenacity), High Narco (high-tenacity). *Skenandoa Rayon Corp.*—Skenandoa. *Tubize Chatillon Corp.*—Tubize, Chardonize, Hygram (high-tenacity). *Woonsocket Rayon Co.*

ubility in rganic olvents	Affinity for Dyes	Resistance to Moths	Resistance to Mildew	Types and Sizes	Uses	Manufacturers and Trade-Names
uble; le in am- um solu- and some com- ds.	Has an affinity for same dyes as viscose rayon.	Wholly resistant.	Attacked.	Continuous-multi-filament yarn 30 to 150 den., 30 to 225 filaments; bright, semi-dull, and dull luster; undyed.	Particularly suitable where fineness of filaments is important. Military uses include flare chutes, emblems, ribbons, banners, ties, etc. Civilian uses include woven and knitted fabrics for women's wearing apparel, such as sheer dress fabrics, satins, crepes, failles, moires; drapery, upholstery and decorative fabrics; and wide range of knitted apparel, such as underwear, gloves, and hosiery.	*American Bemberg Corp.*—Bemberg, Matesa, Aristocrat, Star Breeze, Snowkrepe. *United States Rayon Co.*

CUPRAMMONIUM RAYON

ACETATE RAYON

Microscopic Appearance



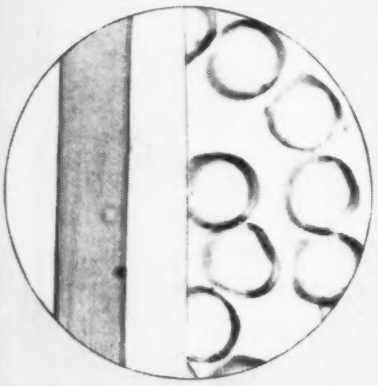
DULL - LUSTER ACETATE RAYON (500x)—left, longitudinal; right, cross-section.

Manufacture	*Tensile Strength*	*Elongation at Break*	*Elastic Recovery*	*Linear Change*	*Specific Gravity*
Acetate rayon is produced by dissolving cellulose acetate—derived usually by acetylating cotton linters with acetic anhydride and partially saponifying—in a suitable solvent and then forming the filaments by extrusion of the solution through spinnerets into warm air. High-impact acetate rayon made by a modification of the usual processes has an elongation of high percentage. Acetate rayon having about twice the tensile strength of regular types is being produced experimentally.	Dry: 1.25–1.4 g.p.d.; Wet: 0.8–0.9 g.p.d.	Dry: 23–30%; Wet: 30-38%.	65% at 4% stretch; 29% at 14% stretch.	———	1.32-1.35
Saponified acetate rayon yarns having a high tensile strength can be obtained from acetate rayon by special saponification and stretch spinning processes.	Saponified acetate rayon Type I—Dry:5.6g.p.d.; Wet: 4 g.p.d.; Type II—Dry: 7 g.p.d.; Wet: 6 g.p.d.	Saponified acetate rayon Types I and II—Dry: 6%; Wet: 6%.			

Note: ***Values for physical properties given are typical for each type of fiber, Properties listed refer only to regular types of acetate rayon, with exception***

NYLON

Microscopic Appearance



NYLON (500x)—left, longitudinal; right, cross-section.

Manufacture	*Tensile Strength*	*Elongation at Break*	*Elastic Recovery*	*Linear Change*	*Specific Gravity*
Nylon is described chemically as a polyamide produced by the reaction between a primary or a secondary diamine and either a dicarboxylic acid or an amide forming derivative of a dibasic carbloic acid. Hexamethyline diamime is typical of the former type of chemical, and adipic acid is typical of the latter type. The polyamide is melted and then extruded in continuous filament form through holes in a spinneret. At present ten types of Nylon are being produced, each with distinctive properties.	Dry: 4.5–7.0 g.p.d.; Wet: 3.7–5.7 g.p.d. Can be varied by modifying manufacturing process.	Dry: 20%; Wet: 30%. Can be varied by modifying manufacturing process.	100% at 8% stretch; 91% at 16% stretch.	Wet length 3.5% above dry length.	1.14

	Specific Gravity	Regain	Total Water Absorbency	Dielectric Strength	Burning Rate	Resistance to Heat	Softening Point	Effect of Age	Effect of Sunlight	Effect of Acids	Effect of Alkalis	Effect of Other Chemicals
	1.32-1.35	6.5% at 70°F. and 65% r.h. (A.S.T.M. Standard)	50%	3,000 volts per mil. at 70°F. and 65% r.h.	Slow.	Becomes delustered in water at temperatures above 200°F. Temperatures above 220°F. in presence of steam cause loss of tensile strength.	About 400–445°F. Fuses at approximately 500°F.	Slight.	Slight.	Dilute solutions of weak acids have little effect. Concentrated solutions of strong acids cause decomposition.	Cold, dilute solutions of weak alkalis have little effect. Strong alkalis saponify cellulose acetate into regenerated cellulose. Under contolled conditions, alkalis can be used to cause partial saponification which raises the fusing point and changes the affinity for dyes.	Attacked by strong oxidizing agents. Not damaged by hypochlorite or peroxide bleaching solutions under normal conditions of use. Unaffected by sea water.

of fiber, but vary according to brand and in same brand depending on denier, luster, test procedure, etc. exception that figures are given for tensile strength and elongation of two types of saponified acetate rayon.

	Specific Gravity	Regain	Total Water Absorbency	Dielectric Strength	Burning Rate	Resistance to Heat	Softening Point	Effect of Age	Effect of Sunlight	Effect of Acids	Effect of Alkalis	Effect of Other Chemicals
	1.14	4.1% at 70°F. and 65% r.h.	7.6%	Dielectric constant: 4 at 1,000 cycles at 18% r.h. and 70°F. Breakdown strength 1,300 volts per mil for 9 mil sheet (unoriented) 3,000 volts per mil for 2 mil sheet (oriented)	Very low.	Exposure to steam at 390°F. for 3 hr. has no effect on tensile strength; at 435°F. there is some loss; at 465°F. there is a large loss.	Melts at approximately 470°F.	None.	Slight.	Resistant to weak acids. Attacked by strong acids; e.g., boiling in 5% hydrochloric acid makes fibers brittle and finally destroys them.	None.	Treatment with 3% hydrogen peroxide or sodium hypochlorite for hr. at room temperature does not affect tensile strength. Treatment with sodium sulphite solution followed by steaming increases elastic recovery, crimp, and crease retention.

ACETATE RAYON

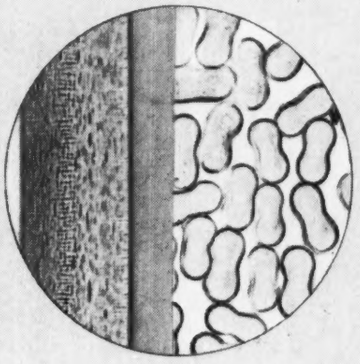
Solubility in Organic Solvents	*Affinity for Dyes*	*Resistance to Moths*	*Resistance to Mildew*	*Types and Sizes*	*Uses*	*Manufacturers and Trade-Names*
Soluble in acetone, phenol, concentrated and glacial acetic acid, and some other solvents.	Has an affinity for special dyes developed for acetate rayon and for some acid and basic dyes. Saponified or partially saponified acetate rayon has an affinity for substantive dyes.	Wholly resistant.	Highly resistant.	Continuous multi-filament yarns, 45 to 300 den. with 11 to 104 filaments. Bright, semi-dull, and dull lusters; undyed and spun-dyed in limited number of shades. Abraded-filament yarns, 100 to 400 den. Acetate rayon staple 1½ to 20 den., 15/16 to 7 in. lengths (1/16 in. for floc); bright and dull lusters; undyed and black.	Continuous-filament acetate rayon yarn is particularly suitable where its unique dyeing properties, resistance to sea water, or its thermoplastic properties are important. Military uses include hatbands, neckerchiefs, tie fabrics, uniform lining fabrics, underwear for WACS. Civilian uses include dress goods, linings, hosiery, fused fabrics; it is often employed in combination with viscose rayon to produce woven or knitted fabrics which can be cross-dyed. Acetate rayon staple, alone or blended with other fibers, is used for such purposes as men's and women's wear, blankets, upholstery, carpets, rugs, stuffing for cushions. Saponified acetate rayon yarn is particularly suitable where high strength, low elongation, and light weight are important. Entire output is being used for military purposes which include parachute cloths, paulins, powder bags, braids, lines, cords, tapes, and sewing threads.	*American Viscose Corp.*—Seraceta, Seraceta Fibro (staple fiber). *Celanese Corp. of America*—Celanese, Fortisan (saponified acetate), Celairese (staple fiber). *E. I. du Pont de Nemours & Co.*, Acetate Division—Acele. *Tennessee Eastman Corp.* Eastman Acetate Rayon, Koda, Teca (staple fiber). *Tubize-Chatillon Corp.*—Chacelon.

NYLON

Solubility in Organic Solvents	*Affinity for Dyes*	*Resistance to Moths*	*Resistance to Mildew*	*Types and Sizes*	*Uses*	*Manufacturers and Trade-Names*
Soluble in phenol, cresol, xylenol, and formic acid. Insoluble in most other organic solvents.	Has an affinity for many of the dyes used for silk, wool, and acetate rayon.	Neither adult moths or larvae can eat Nylon for food, but will cut their way out if trapped.	Wholly resistant.	Multi-filament yarn 30 to 40 den. with 7 to 69 filaments. Monofilaments. Rattan-like strips.	Particularly suitable where high elasticity is required. Military uses include parachute fabrics, tire cords, glider tow ropes, shoe laces, webbing, braid, tape, thread. Largest pre-war civilian use was in full-fashioned hosiery; other civilian uses include seamless hosiery, underwear fabrics, lace, nets, marquisettes, dress fabrics, neckties, transparent velvet, coated fabrics for raincoats and food covers. Industrial uses include shoe fabrics, sash cords, window screens, filters, bolting cloth. Potential uses include slip covers, automobile upholstery, shirtings, tents, shower curtains. Uses in form of rattan-like strips include upholstery for car seats and outdoor furniture and coated fabrics resembling leather.	*E. I. du Pont de Nemours & Co., Inc., Nylon Division*—Nylon is the generic name for a wide range of polyamides produced by the duPont Company.

VINYON

Microscopic Appearance

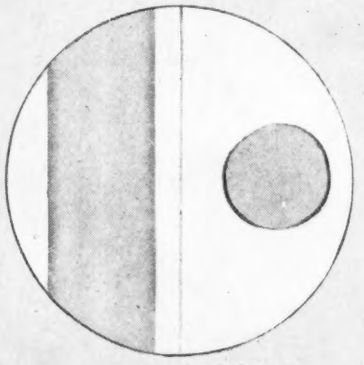


VINYON — left, longitudinal (1,000x); right, cross-section (500x).

Manufacture	*Tensile Strength*	*Elongation at Break*	*Elastic Recovery*	*Linear Change*	*Specific Gravity*	*Regain*	*Total Water Absorbency*	*Dielectric Strength*	*Burning Rate*
Vinyon is derived from a vinyl resin, which is known chemically as a copolymer of vinyl chloride and vinyl acetate. The vinyl resin in the form of a dry powder is dispersed in acetone, the dispersion is then filtered through a filter press, and deaerated by allowing it to stand for 48 hr. Extrusion of the filaments is carried out by a dry spinning process. After the filaments have been allowed to stand for at least 12 hr., they are wet twisted and the twisted yarn is then stretched by means of a suitable device to about 140% of its original length. Two types, called Type I and Type II in table are in general use.	Dry and Wet: Type I—2–2.4 g.p.d.; Type II —3.5–4 g.p.d.	Type I—30–35%; Type II—14–16%.	Vinyon—About the same as silk. Vinyon E—Up to 80% stretch an immediate recovery of 90%; further recovery in short time to 96%; repeated flexings do not appreciably affect the elasticity.	None at ordinary temperatures.	Vinyon—1.34–1.36.	None.	Vinyon—0.05–0.15%.	Vinyon 650 volts per mil. (60 cycle).	Vinyon Does not support combustion.
Vinyon E, produced by a modified process, has high elasticity and differs from regular types of Vinyon in certain other properties.	Vinyon E—0.15–0.2 g.p.d.	Vinyon E—400%.			Vinyon E—1.19.				Vinyon E Supports flame very poorly.

SARAN
VELON
PERMALON

Microscopic Appearance



SARAN (50x) — left, longitudinal; right cross-section.

Manufacture	*Tensile Strength*	*Elongation at Break*	*Elastic Recovery*	*Linear Change*	*Specific Gravity*	*Regain*	*Total Water Absorbency*	*Dielectric Strength*	*Burning Rate*
Petroleum and salt are treated to produce ethylene and chlorine. These chemicals are combined to form vinylidene chloride. This is copolymerized with vinyl chloride to form Saran synthetic resin. The resin is melted, then extruded in form of a monofilament yarn or in strips or ribbons, stretched and heat treated during and/or after stretching.	Dry; 4-6g.p.d. Wet; 4-6 g.p.d. Can be varied by modification of manufacturing process.	Dry; 20 to 30%. Wet; 20 to 30%. Can be varied by modification of manufacturing process.	Approximately 95%.	None.	1.72	——	Less than 0.1%	500	None—Self-extinguishing

...ic ...ty	Regain	Total Water Absorbency	Dielectric Strength	Burning Rate	Resistance to Heat	Softening Point	Effect of Age	Effect of Sunlight	Effect of Acids	Effect of Alkalis	Effect of Other Chemicals	Solubility in Organic Solvents
	None.	Vinyon — 0.05–0.15%.	Vinyon — 650 volts per mil. (60 cycle).	Vinyon — Does not support combustion.	Vinyon — Temperatures over 150°F. cause shrinkage.	Vinyon — Becomes tacky at about 290°F., melts and decomposes at about 410°F.	None.	Very slight.	None.	Vinyon — None.	Vinyon — Generally unaffected.	Vinyon — Soluble in ketones a some chlo nated hy carbons; s and soften ethers; es aromatic hydrocarb dioxane, propylene oxide; insoluble i alcohol, aliphatic hydrocarb oils, and
				Vinyon E — Supports flame very poorly.	Vinyon E — Elastic properties hold over approximate range of 32–175°F. Can be boiled in water, but overstretching will cause elongation.	Vinyon E—Becomes tacky at about 240°F.; melts at about 356°F.				Vinyon E—Prolonged boiling in alkaline solutions reduces elasticity and yarn becomes stiff.	Vinyon E—Prolonged boiling in soap solutions reduces elasticity and yarn becomes stiff.	Vinyon E— Affected b same solv as Vinyon other solve such as g line and alcohol, c stiffening the yarn.

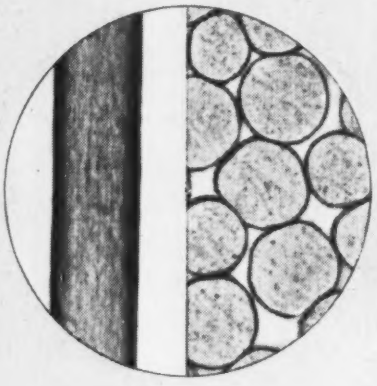
...ic ...ty	Regain	Total Water Absorbency	Dielectric Strength	Burning Rate	Resistance to Heat	Softening Point	Effect of Age	Effect of Sunlight	Effect of Acids	Effect of Alkalis	Effect of Other Chemicals	Solubility in Organic Solvents
	——	Less than 0.1%	500	None—Self-extinguishing	Resistant up to 170°F.; at 212°F loses approximately 50% of tensile strength.	240–280°F.	None.	Darkens slightly.	Unaffected by most acids.	Unaffected by most alkalis including caustic soda, but has only limited resistance to ammonia.	Generally good resistance.	Insoluble i benzene, oline, car tetrachlori and most o common o ganic solve Is swelled softened oxygen-bea ing solve such as cy nexanone dioxane.

Solubility in Organic Solvents	Affinity for Dyes	Resistance to Moths	Resistance to Mildew	Types and Sizes	Uses	Manufacturers and Trade-Names
Vinyon—Soluble in ketones and some chlorinated hydrocarbons; swells and softens in ethers, esters, aromatic hydrocarbons, dioxane, propylene oxide; insoluble in alcohol, aliphatic hydrocarbons, oils, and fats.	Vinyon—Can be dyed with dispersed type dyes with the aid of certain swelling agents; some basic dyes can also be used; dyeing by the so-called solvent method is readily accomplished; pigmentation before extrustion is possible.	Wholly resistant.	Wholly resistant.	Vinyon—Continuous multi-filament yarns Type I: 60, 120, 180, 250 den.; Type II: 40, 80, 120, 160, 200 den. Staple fibers in various deniers and lengths. Special low-fusing staple fibers.	Vinyon—Particularly suitable where resistance to acids and alkalis, low water absorbency, and thermoplasticity are important. Present and potential applications for Vinyon include filter fabrics, fish lines, nets and seines, acid and alkali-resistant clothing, protective pipe covering, elastic insulation, shower curtains, bathing suits, waterproof clothing; fireproof awnings and curtains, hosiery and fusible shape-retaining fabrics. Staple fibers mixed with cotton or wool are used in making felts and permit production of fabrics which will maintain a pressed crease or fold.	*American Viscose Corp.*—Vinyon, Vinyon E.
Vinyon E—Affected by same solvents as Vinyon; other solvents, such as gasoline and alcohol, cause stiffening of the yarn.	Vinyon E—Can be dyed with dispersed type dyes; pigmentation before extrusion is possible.			Vinyon E—Continuous multifilament yarns 500, 1000, and 1500 den.	Vinyon E—Particularly suitable where high elasticity is desirable in cords, braids, and woven or knitted fabrics. Uses include suspension cords for jungle hammocks, heavy-duty suspenders for aviator's suits, surgical stockings, knee braces, metatarsal bandages.	

Solubility in Organic Solvents	Affinity for Dyes	Resistance to Moths	Resistance to Mildew	Types and Sizes	Uses	Manufacturers and Trade-Names
Insoluble in benzene, gasoline, carbon, tetrachloride, and most other common organic solvents. Is swelled or softened by oxygen-bearing solvents, such as cyclonexanone and dioxane.	Has no affinity for most classes of dyes. Can be colored by incorporating dyes or pigments in the resin solution before extrusion.	Wholly resistant.	Wholly resistant.	Monofilaments 0.008 to 0.06 in. in diameter: rattan-like strips, ribbons. Available in wide range of colors.	Particularly suitable where high strength and elongation, low water absorbency, and high resistance to chemicals and abrasion are important. Present and potential military and civilian uses for the monofilaments include ropes, cord, fishing leaders, trolling lines, tennis racquet strings, woven window screens, laundry nets, seat covers, upholstery, draperies, wall coverings, shoe tops, belts, suspenders, hand bag fabrics, filter cloth. Uses for rattan-like strips include car-seat coverings.	*Dow Chemical Co.*—Saran *Firestone Industrial Products Co.*—Velon *Pierce Plastics, Inc.*—Permalon

ARALAC

Microscopic Appearance

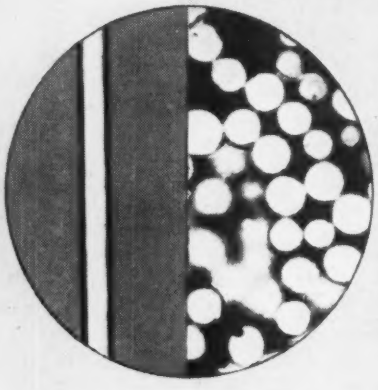


ARALAC (500x) — left, longitudinal; right, cross-section.

Manufacture	*Tensile Strength*	*Elongation at Break*	*Elastic Recovery*	*Linear Change*	*Specif Gravi*
Aralac is a protein fiber produced by precipitating casein from skim milk, dissolving it in an alkaline solution, ageing, spinning by extrusion through spinnerets into an acid bath, cutting the continuous filaments into desired staple lengths, washing, treating with dilute formaldehyde solution, and drying.	Dry: Approximately 75% that of wool. Wet: Approximately 30% that of wool.	12–15% at 70°F. and 65% r.h.; increases with increases in humidity.	Somewhat less than that of wool.	———	1.29

FIBERGLAS

Microscopic Appearance



FIBERGLAS (500x)—left, longitudinal; right, cross-section.

Manufacture	*Tensile Strength*	*Elongation at Break*	*Elastic Recovery*	*Linear Change*	*Specif Gravit*
Fiberglas textile fibers are produced by two methods—the continuous filament process and the staple fiber process. In each process glass marbles made from melted and refined raw materials are remelted in small electrical furnaces, each of which has many small holes in base of the melting chamber through which the molten glass flows in fine streams by gravity. In the continuous filament process more than 100 filaments are drawn simultaneously and gathered into a strand. The strand is attached to a high-speed winder that, as it draws the strand, attenuates each stream of molton glass to a fraction of the diameter of the hole through which it emerges. In the staple fiber process the streams of molten glass are struck by jets of high-pressure air or steam which attenuate the glass into fibers varying in length from 8 to 15 in. These fibers are driven onto a revolving drum on which they form a web, which is gathered from the drum and wound on a tube in the form of a sliver. Strands of either continuous filament or staple fibers are twisted and plied into yarns on standard textile machinery.	Dry: 6.5 g.p.d.; Wet: 6.3 g.p.d.	Dry: 2 to 3%; Wet: 1 to 2%.	100%.	None.	2.54.

ar ge	Specific Gravity	Regain	Total Water Absorbency	Dielectric Strength	Burning Rate	Resistance to Heat	Softening Point	Effect of Age	Effect of Sunlight	Effect of Acids	Effect of Alkalis	Effect of Other Chemicals
—	1.29	13% at 70°F. and 65% r.h.	About the same as wool.	400–70	Very low.	Temperatures over 212°F. cause harshness, brittleness, loss in tensile strength.	———	None.	Affected to about same extent as wool.	Unaffected by weak acids; decomposed by strong acids.	Weak alkalis at low temperatures have no appreciable effect. Weak alkalis at high temperatures cause loss in tensile strength. Strong alkalis cause softening, gelatinization, and decomposition.	Yellowed and tendered by hypochlorites. Can be bleached with hydrogen peroxide or sodium bisulphite and sulphuric acid. By itself does not felt when treated with soap, but can be felted with wool in either acid or alkaline solutions. Swells about 10% in water.

ar ge	Specific Gravity	Regain	Total Water Adsorbency	Dielectric Strength	Burning Rate	Resistance to Heat	Softening Point	Effect of Age	Effect of Sunlight	Effect of Acids	Effect of Alkalis	Effect of Other Chemicals
	2.54.	——	Less than 1/10 of 1% surface adsorption.	Good.	None.	Begins to lose tensile strength slowly at temperatures above 600°F.	Begins to soften at temperature of approximately 1,500°F. (Experimental fibers withstand nearly 2,000°F.)	None.	None.	Unaffected by acids with exception of hydrofluoric acid and phosphoric acid.	Is attacked by hot solutions of weak alkalis and cold solutions of strong alkalis.	Resistant to most chemicals.

ARALAC

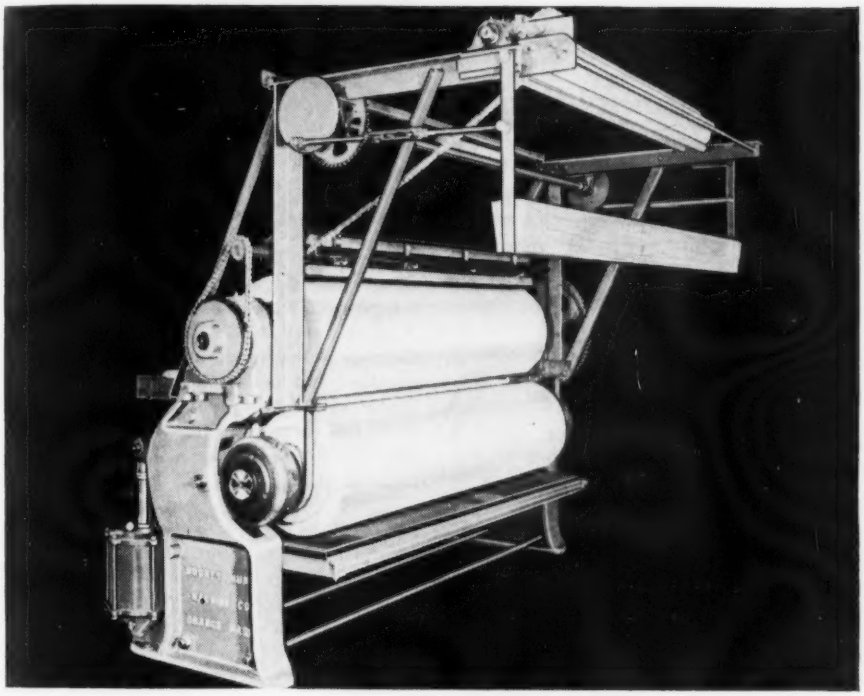
Effect of Acids	Effect of Alkalis	Effect of Other Chemicals	Solubility in Organic Solvents	Affinity for Dyes	Resistance to Moths	Resistance to Mildew	Types and Sizes	Uses	Manufacturers and Trade-Names
Unaffected by weak acids; decomposed by strong acids.	Weak alkalis at low temperatures have no appreciable effect. Weak alkalis at high temperatures cause loss in tensile strength. Strong alkalis cause softening, gelatinization, and decomposition.	Yellowed and tendered by hypochlorites. Can be bleached with hydrogen peroxide or sodium bisulphite and sulphuric acid. By itself does not felt when treated with soap, but can be felted with wool in either acid or alkaline solutions. Swells about 10% in water.	Insoluble.	Has an affinity for acid, chrome, direct, and other classes of dyes employed on wool.	Resistant.	Attacked.	Staple fiber in sizes corresponding to 50s, 60s, and 70s wool and lengths ranging from $\frac{1}{2}$ to 6 in.	Aralac is particularly suitable for use in blends with other fibers, such as wool, viscose rayon, acetate rayon, and cotton. Included among present and potential civilian uses, alone or in blends, are coatings, suitings, dress goods, interlinings, blankets, neckties, scarfs, underwear, socks.	*Aralac, Inc.*—Aralac.

FIBERGLAS

Effect of Acids	Effect of Alkalis	Effect of Other Chemicals	Solubility in Organic Solvents	Affinity for Dyes	Resistance to Moths	Resistance to Mildew	Types and Sizes	Uses	Manufacturers and Trade-Names
Unaffected by acids with exception of hydrofluoric acid and phosphoric acid.	Is attacked by hot solutions of weak alkalis and cold solutions of strong alkalis.	Resistant to most chemicals.	Insoluble in all organic solvents.	No affinity for ordinary dyes; can be produced in various colors and can be colored with resin-bonded pigment dyes.	Wholly resistant.	Wholly resistant.	Finest two-ply continuous-filament yarns are approximately 0.0025 in. in diameter, containing 204 filaments, each averaging 0.00023 in. in diameter. Staple fibers average 8 to 15 in. long, and are made in several diameters from 0.00028 to 0.00038 in. Yarns of staple fibers start at approximately 0.0062 in. diameter.	Fiberglas yarns are particularly suitable where fireproofness, resistance to acids or other chemicals other than alkalis, excellent electrical insulating properties, or high tensile strength is important. Military uses include woven parachute flare-shades, fabric for shielding wires in electrically heated divers' suits, cloth facing for rigid Fiberglas insulation on naval fighting craft, lagging for insulated piping and equipment, insulating and sound-absorbing blankets for aircraft, reinforcement for certain types of electrical and structural plastics, blood plasma filters, electrical insulation in light-weight, high-stamina and high-temperature wires, cables, motors, generators and related equipment. Civilian uses include electrical yarns, cords, tapes, cloths, and sleevings which form the basis for a plain and varnished or impregnated electrical insulation material suitable for Class B (high-temperature use) equipment. Other industrial uses include chemical filter fabrics; anode bags used in electroplating; wicking for oil stoves and lamps; pump diaphragms; special cloths, belts, and cords for resisting high-temperature fumes and acids; facing materials for insulating or acoustical blankets, and rubber-coated acid-proof and waterproof fabrics. Decorative uses prior to war but discontinued for the duration included draperies, shower curtains, table cloths, bedspreads, lamp shades, and some apparel accessories, such as men's neckties.	*Owens-Corning Fiberglas Corp.*—Fiberglas.

TEXTILE EQUIPMENT NEWS

Improved Continuous Extractor



Extractor for range use in textile mills (Rodney Hunt)

A heavy duty continuous extractor of the squeeze roll type intended for range use in the processing of knitted, woven or pile fabrics, has been announced by Rodney Hunt Machine Co., Orange, Mass.

Squeeze rolls are of cast iron and covered with rubber. The bottom roll, contrary to general practice, is movable and held in place by pneumatic pressure while the extractor is in operation. With this arrangement, when the machine is not in operation the rolls are held out of contact by gravity. When operating, air pressure controlled by a central valve lifts the lower roll into contact with the top roll and maintains the desired contact pressure. It is stated that a disadvantage of the former method of having a movable top roll was that air pressure was constantly required to keep the rolls apart when the machine was not in operation. Leakage would result in roll contact during non-operation periods and thus injure the rubber rolls.

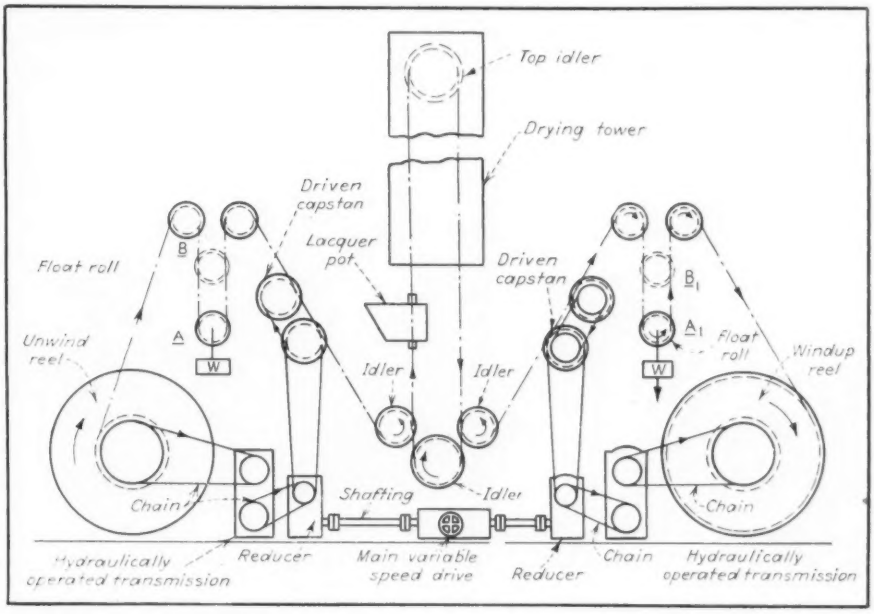
Another special feature of this new extractor is the arrangement of the rolls themselves. By cocking the rolls at an angle so that the cloth passes through on an incline it is possible to eliminate an important extraction problem known as "wet selvage." This condition is caused by the liquid remaining between the rolls in contact with the selvage at each end. But, when the rolls are cocked and the cloth passes through on an incline the liquid is forced back into the tub.

Air pressure may be drawn from the regular compressed air supply, or if such a supply is not available, an automatic motor compressor can be used.

Constant Speed and Tension Unwind and Windup System

Development of constant-tension, constant-speed windup equipment having several novel features has been announced recently by Industrial Oven Engineering Co., 11621 Detroit Ave., Cleveland, Ohio. Originally designed for use in conjunction with the lacquering of wire at high speeds, the equipment is said to be suitable also for use in processing yarn, thread, cord, and fabrics where close control of tension is advantageous or essential. Several modifications of the equipment are available, each having distinctive features. These include: (1) friction unwind with controlled processing speed and tension-controlled wind-up; (2) driven unwind and windup with controlled speed and tension; (3) friction unwind using capstan drive and having slip belt for windup; and (4) friction unwind and friction windup having slip-belt drive.

The accompanying diagram illustrates the constant speed and tension system with driven unwind and windup as used in the wire lacquering process. Basically it consists of unwind and windup reels and two capstans driven from a main variable-speed drive through speed reducers, float rolls, and guide rolls. The material to be processed is drawn at constant speed from



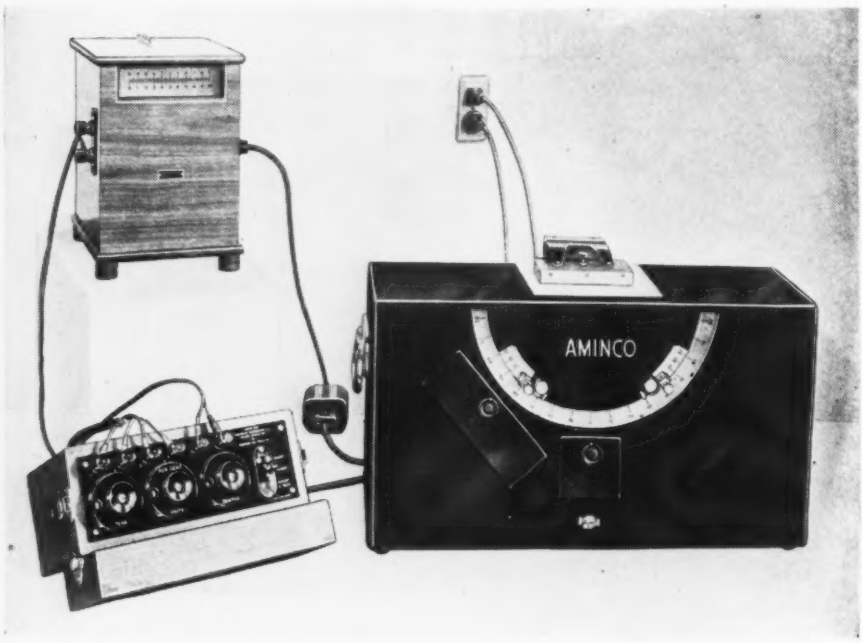
Constant speed and tension unwind and windup system (Industrial Oven)

the unwind reel and over the guide rolls and float roll by the driven capstan passes through the processing solution and dryer (lacquer pot and drying tower in this particular set-up) and is delivered at constant speed by the second driven capstan to the windup reel. The float rolls are free to travel from positions A to B and A' to B' in response to tension. The unit has a speed variation of 3 or 4 to 1; permitting speeds to be controlled at any speed of, say, between 50 and 200 ft. per min. Two important features are the synchronization of the unwind drive and the windup drive, and the possibility of processing materials at constant speed with minimum tension.

Instrument for Measuring Gloss

Measurement of high, medium and low gloss of plane surfaces such as textile fabrics, coated fabrics, paint finishes, etc. when the materials are 2½ in. x 3 in. or greater in size, is possible with the Amico-Scott Glossmeter, developed by American Instrument Co., Silver Spring, Md. Other uses for this instrument, it is stated are to measure the hiding power of finishes, cleansing power of soaps and detergents, resistance of plastic finishes to abrasion, etc. and for other tests to be made in laboratories and for production control.

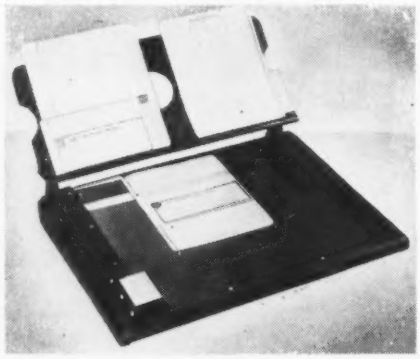
Illumination is adjustable and angles may be read to 1 min. of arc for relative apparent reflectance from zero to 100%. A complete gloss curve of a high-gloss sample can be obtained in 30 min. and the instrument has a wide range from high gloss to flat gloss without the use of neutral filters, wedges, or similar devices. It need not be operated in a darkened room. Operation is on 110-120 volt, 60 cycle, a.c. current.



Glossmeter for measuring gloss (American Instrument)

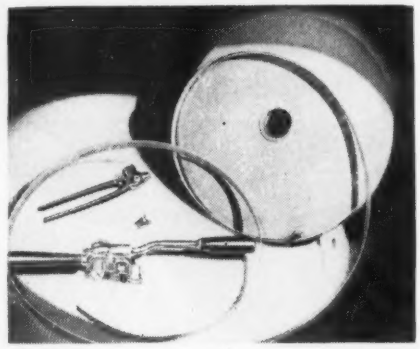
Payroll Formholding Device

A device for holding forms used in the posting of payroll data, known as the Form-Master, is being manufactured entirely of wood by Todd Co., Inc., Rochester, N. Y. This holder permits employees' checks or cash payroll statements, payroll summary sheets and individual earnings records—source material from which government reports are compiled—to be posted at the same time. It is reported that the use of such a holder eliminates copying errors from individual posting and, at the same time, greatly reduces the time and the number of employees required for the posting of payroll records. Also, the Form-Master is applicable to large and to small mills.



Form-Master for holding payroll records (Todd)

Fiber Tape Substitute for Steel and Wire Strapping



A laminated fiber tape suitable as a strapping material for all types of packages weighing 90 lb. or less, is being offered by A. J. Gerrard & Co., 2700 Belmont Ave., Chicago. The tape, it is stated, is water repellent and has an elongation of only 1%. Under actual tests it has a tensile strength of 13,500 lb. per sq. in. It is available in 700 ft. rolls, ¾-in. wide.

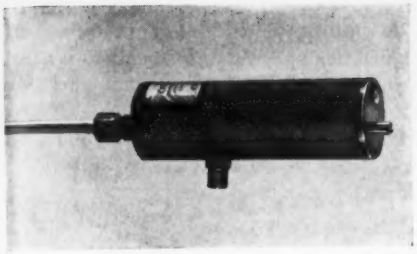
Color Guide

A simplified color scale called Color Helm, has been devised by Fiatelle, Inc., 58 W. 40th St., New York, which establishes even intervals of color for the entire spectrum. This device should prove helpful in pattern planning on print goods and in the development of color combinations in textile designs.

The color helm combines colors in sets of three—simultaneously arranging all of the other 69 colors in the same relationship. There are in the scale two complete sets of colors, each made up of 72 colors. Various degrees of color contrast may be obtained in ranges of 8⅓%, 16⅔%, 41⅔%, 66⅔% and 100%. The industrial model Color Helm has 13,824 possible color combinations from which a designer may choose.

Inexpensive Humidifier

A small, compact humidifier has been developed by Techtmann Industries, Inc., Milwaukee, Wis. This unit may be used in mills and offices on steam-heating systems carrying less than 20 lb. pressure. The new E-Humidifiers are



Simple humidifier attached to steam lines (Techtmann)

quickly installed on the feed-end of radiators, or on steam-risers at points where the condensate will return to the boiler when the radiators are turned off. Compact, entirely automatic in operation, they diffuse moisture into the air at the proper time. A 30-gal. capacity will humidify 10,000 to 20,000 cu. ft. of air.

Drum Carrier

A new 14-in. lift-model carrier with built-in brake for placing and removing 55-gal. drums on and off skids, scales, and platforms has been announced by Ernst Carrier Sales Co., Buffalo, N. Y. The built-in brake provides smooth, slow and easy lowering of the container from the top 14-in. position. To raise the container a full 14 in. off the floor, the handle is lowered from the top position to the horizontal position, where the handle automatically locks. By unlocking the handle and applying the brake, the container is lowered to the floor. With this lift, one man can take the place of several formerly required to move and raise drums.

Useful Accessories for Textile Mills

Automatic control instruments of the air-operated type have been announced by Bristol Co., Waterbury, Conn., for automatically controlling temperature, flow, liquid level, pressure, draft, humidity and pH value. The instrument can be converted from one type of control system to another. A permanent record chart is made.

Extractors for backing out broken pipes, tubes, bolts, studs and screws are being offered by Reps Tool Co., Inc., 99 Wall St., New York. These extractors are of forged tool steel with heavy square shank followed by a sharply tapered, short, reverse thread ending in a square reaming end. Sets are available covering the entire range of pipe from 1/8-in. to 2-in. and bolts from 3/8- to 3½-in. Sets of this nature should prove very useful to maintenance men and master mechanics about mills.

Flexible wood link matting for use about textile mills and replacing matting made of rubber and other essential materials is being offered by American Mat Corp., Toledo, Ohio. This mat is constructed of wood links and can be rolled or folded for easy handling and cleaning. When unrolled it lies flat and follows the contour of the floor. Available in 1-in. thickness, the mat may be obtained in stock sizes of 18x32, 24x38, and 30x44 in.

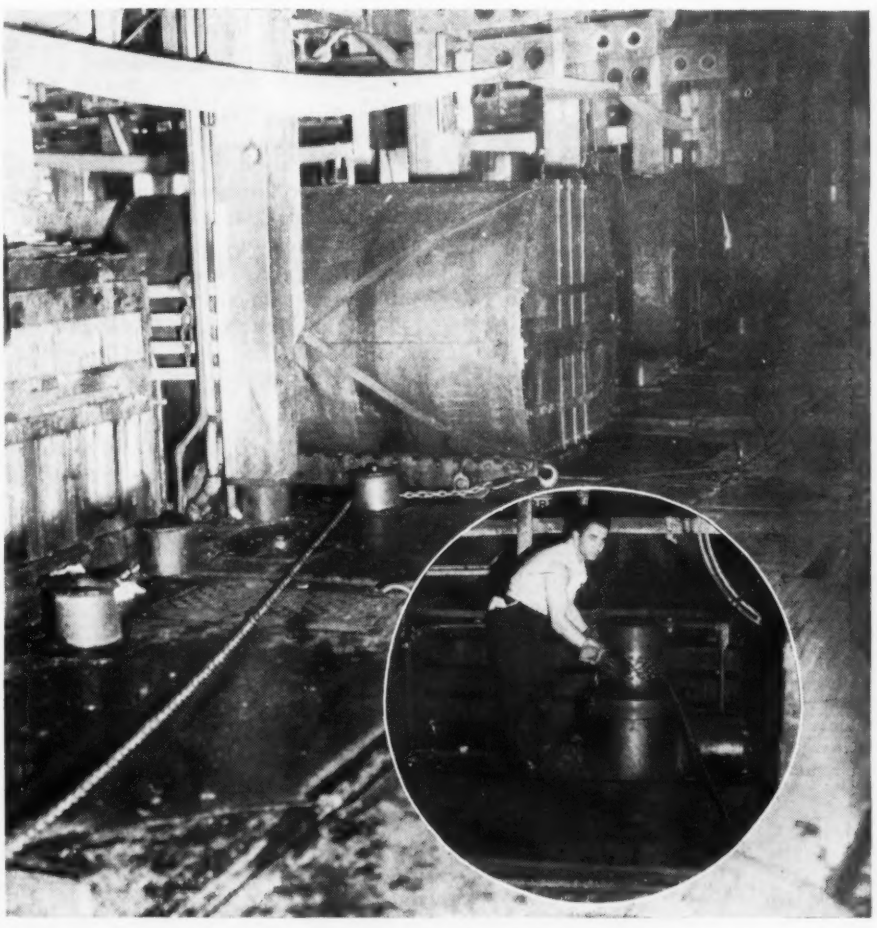
Gear and wheel pullers suitable for use about textile mills by master mechanics and loomfixers are being manufactured by Armstrong-Bray & Co., 5364 Northwest Highway, Chicago. These pullers contain forged steel arms, forcing screw, etc., and are heat-treated for greater strength. They are available in three sizes.

Army-Navy "E" pins are available to those who desire them of a better quality from Royal Emblem Co., 41 John St., New York. These pins meet with the Navy's approval and are obtainable in two sizes—the regulation 1¼-in. and the ¾-in. size suitable for formal or informal wear.

Preparing surfaces for metallizing electrically is possible with a new device announced by Metallizing Engineering Co., Inc., Long Island City, N. Y. This unit fuses a rough deposit of electrode metal over the surface to be metallized, thus providing adequate bond on the hardest surfaces hitherto impossible or impractical to prepare by blasting or rough threading.

A slit grinder that will recondition any standard 3-in. score cut slitter accurately has been announced by Johnstone Engineering & Machine Co., Downingtown, Pa. This device eliminates the use of a lathe with grinder attachment for slit cutting, thereby permitting the lathe to be used for other necessary maintenance work.

KIER CARS MOVED BY CAR SPOTTER



Installation in plant of Joseph Bancroft & Sons Co., Wilmington, Del., of a Link-Belt motorized electric car spotter for moving kier cars into and out of kiers with aid of a system of guide rollers located along the floor to guide the haulage chain. Illustration shows one end of chain attached to kier car, with inset showing other end wrapped around capstan of car spotter. In operation, a man attaches a chain to a kier car, passes it around the capstan, and starts the capstan. By means of turntables in the floor and a change in receiving of the haulage chain, kier cars can be readily switched into and out of kiers as desired.

Mill Maintenance Section

Foxholes in Your Mill Floors

Since Bataan we have learned a great deal about foxholes, states an article appearing in *Building Maintenance*, published by Truscon Laboratories. They have a definite place at the battle front, but on the home front foxholes in concrete floors have no place in textile mills. Broken-up, cracked and rutted concrete floors slow-up production and offer a hazard to the safety of employees.

Operations for repairing such holes are covered in the accompanying illustrations which show the succession of steps from cleaning and trimming the hole to the final troweling of the new surface. It is particularly important that the intermediate steps be carefully followed to assure a good bond between the new material and the old floor.

1. Cutting out the hole with hammer and chisel. Wire brush is used to roughen edges where old surface and new will join. Cut should be made somewhat perpendicular, as no good floor patching job should ever be feather-edged.

2. Wet the cleaned-out area with water and carefully sweep out all excess water and crumbled material. Cover the hole with the floor patching material, add water and mix.

3. Slush coating. Place a little of the mixed floor-patching in the hole which must still be wet—then sweep it vigorously into all cracks and crevices. Add just a little additional water, if necessary, to get better distribution of the slush coat.

4. Material is now worked into the hole and patted down with a shovel or pounded in with the end of a 2x4. Surface is then screened level with adjacent floor and troweled to a smooth finish.

Prolong Instrument Life

Demand for instruments in war industries and high priorities have limited replacements possible for the textile industry. Every precaution must be taken that useful life of instruments is prolonged, to insure continued production. Outlined in a recent issue of *Wheelco Comments*, published by Wheelco Instruments Co., are steps that can be taken to prolong instrument life and can be used as a convenient guide on instrument care in your plant, regardless of the make of instruments used.

Centralize Responsibility. All instruments in a plant should be the responsibility of one man, or a group of men, depending upon the number of instruments used.

Locate Properly. Improper location and improper installation of industrial instruments probably causes more trouble and inaccuracy than fault or failure in the instrument themselves. It is as important that instruments be installed where they can be proper serviced and protected.

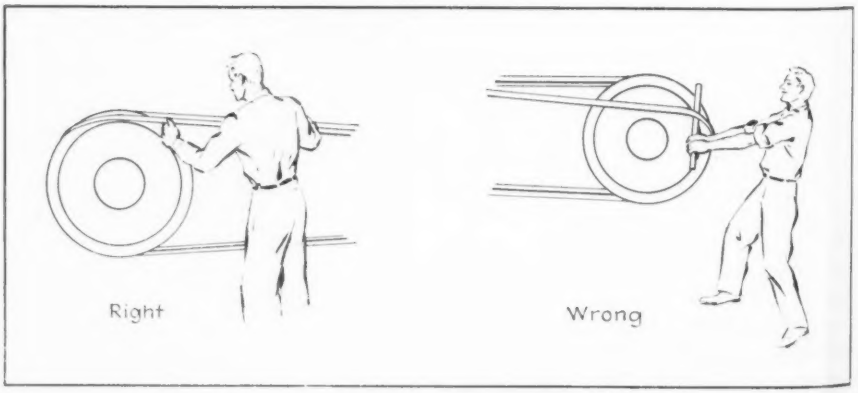
Eliminate Vibration. Prolonged vibration, or shock resulting from careless handling, are chief causes of instrument failure. Installing instruments on vibration mounts will minimize the effects of vibration. A better method is to mount instruments in locations where vibration is not present.

Protect from Dirt. Next to excessive vibration, infiltration of dirt probably causes most industrial instrument trouble. Where instrument movements are particularly sensitive to foreign material that might affect their operation, they usually are provided with dustproof cases. Such instruments should be opened as infrequently as possible, and then preferably in the instrument shop or in a room where provision can be made to keep parts clean.

Avoid Excessive Temperatures. For best results, excessive temperatures, both high and low, must be avoided at the point where the instrument is installed. An instrument is built to give best operation at room temperature, approximately 70° F., and prolonged use at extreme temperatures will affect the instrument's accuracy.

Corrosion Hazards. Any instrument, regardless of its function, will be impaired if placed in a corrosive atmosphere. Corrosive fumes attack instrument finish, moving parts, measuring systems, and may directly result in measuring error and impaired or erratic performance. Special corrosion-proof cases are available for most instruments, but even they do not give absolute protection when the neces-

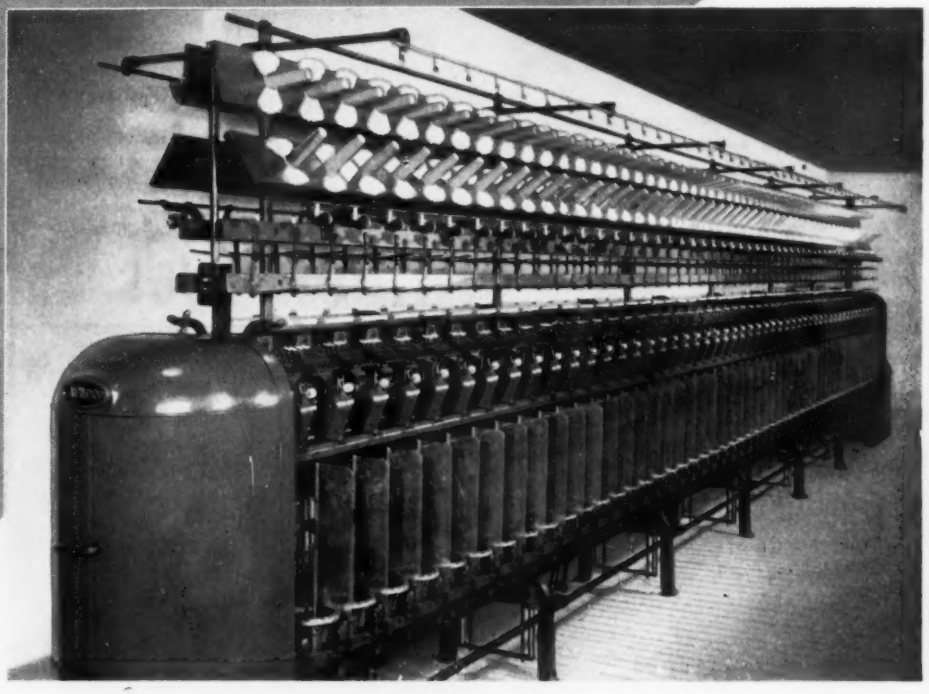
Don't Pry V-Belts



Using a bar may rupture the belt structure and cause short life, according to Multiple V-Belt Drive Association. Always roll the belt over the sheave run by hand, as illustrated.

Special RAYON NUMBER *for* TEXTILE WORLD *Readers*

ATWOOD MODEL 10



Tomorrow's RING TWISTER *Today!*

The Atwood Model 10 Ring Twister (and its even more heavily constructed companion Model 11) is what you told us you wanted for today's and tomorrow's large packages and heavier rayon and spun rayon yarns.

Exclusive ATWOOD advantages include:

Individual Control Of Each Spindle And Feed Roll Unit.

Instantaneous Spindle And Feed Roll Stop When A Single End Breaks . . . Waste Of Yarn Is Minimized . . . Knots Can Be Tied In Single Ends . . . Dirty Yarn Is Eliminated.

Single Belt Drive For Absolute Uniformity Of Spindle Speed . . . When One Spindle Is Stopped No Other Spindle Is Affected.

Extreme Flexibility, Strength And Operating Efficiency . . . Traverse Up To 9½ Inches; Ring Size Up To 5¾ Inches . . . Creel For Cakes, Cones, Bobbins Or Tubes . . . Construction Is Sturdy And Compact . . . Every Part Of The Machine Is Easy To Get At . . . Change Or Reversal Of Twist Is Accomplished Instantly . . . Builder Motion Provides For Virtually Any Type Of Take-Up Package.

NOW is the time to inform yourself as to the operating and economic advantages of this advanced ATWOOD Ring Twister. For the whole story, get in touch with

ARMY NAVY E

AWARDED ATWOOD

THE ATWOOD MACHINE COMPANY

STONINGTON CONN., U. S. A.

SALES OFFICES: STONINGTON · CHARLOTTE · LOS ANGELES · MANCHESTER, ENGLAND · BUENOS AIRES
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sity of opening case doors for chart changes on recording instruments, and adjustments to other instruments, is considered. A small compressed air line connected to the case, with an escape provided through a small breather hole in the case, will properly ventilate the case and provide a slightly excess pressure within it to keep out room atmosphere at all times.

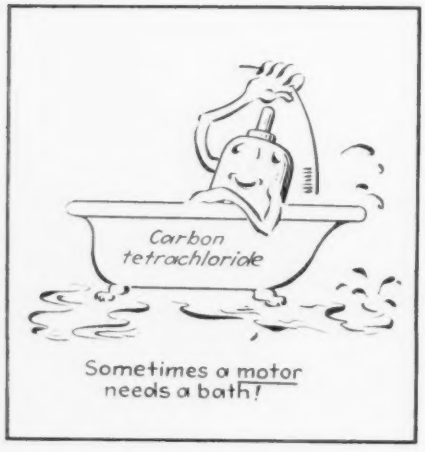
Tubing and Lead Wires. If protective tubing for capillaries of filled-system instruments is damaged, wind with tape to prevent further deterioration. Carefully remove any sharp kinks in the tubing. If tubing or lead wires run near the floor, build a housing over them or fasten them securely to some solid object where they will not interfere with, or be disturbed by, passing traffic.

Avoid Excessive Moisture. Excessive moisture will often harm industrial instruments. For installations where moisture cannot be avoided, a protecting case is recommended.

Do not expose instruments to strong magnetic fields.

Keep Oil Where it Belongs

Outside of bearings, oil is strictly poison to electric motors. Oil catches



Motors, like people sometimes need washing.

dust and fly and harms commutators by deteriorating the mica insulating segments between bars. These are a few of the harmful effects of oil mentioned in "A Guide to Wartime Care of Electric Motors," published by Allis Chalmers Mfg. Co.

Once a winding is thoroughly oil-soaked, the motor is in immediate danger of a burn-out or breakdown. The soaked winding will probably have to be rewound. But, oil is most dangerous to a motor when it has had a chance to unite with dust in the windings—to produce a greasy, gummy mess. Then ventilation is smothered; windings are under continuous attack from oil; any metallic dust present is caught and held in this "gum"—a constant threat of shorting or grounding.

When oil and dust have been allowed to build up, the heavy mess should be removed with the aid of a solvent—preferably a non-inflammable one, such as carbon tetrachloride. If brushes or scrapers are used, be careful not to scrape the insulation. Use solvents with caution, too, taking care not to soak the insulation—on which the solvent is apt to have a softening effect. When all the oil and dirt are out, dry the windings and apply insulating varnish.

New Dyes and Chemicals

Plastic Finishes

Development of a series of non-toxic plastic finishes for cotton, rayon, wool, and other fabrics has been announced by Atlantic Stainpruf Co., 258 Main St., Chatham, N. J. In general, these finishes become insoluble on the finished fabrics, withstanding more than 15 launderings or drycleanings before their flameproofing or repellent properties are diminished below Army standards. The finishes can be applied on conventional textile mill equipment and are available in water-soluble and solvent-soluble types. Two other products recently introduced by this company are Texticide and Aricide. Texticide is a compound used in control of mildew, fungus, and slime, and to prevent bacterial decomposition; it can be applied from solvent, water, or oil emulsion baths, and is said to be non-toxic under recommended conditions of use. Aricide is a single-bath mildewproofing agent and water repellent; it is available in both water-soluble or solvent soluble types.

Glycerine Substitute

A new glycerine substitute has been developed recently by Akerite Chemical Works, 6035 Northwest Highway, Chicago. This company first introduced a glycerine substitute a little over a year ago, but production was stopped when one of the raw materials could no longer be obtained for civilian uses. After considerable research and experimentation, the new substitute was developed which is now being offered in two grades for industrial applications.

New Publications

Making It Stick

SYNTHETIC ADHESIVES; by Paul I. Smith; Chemical Publishing Co., Inc., 234 King St., Brooklyn, N. Y.; $3.

In the textile industry, adhesives find wide application as sizing and finishing agents, in making duplex fabrics, and for a variety of other purposes. In the last ten years a large number of synthetic adhesives have been developed, which for many purposes are competing with natural materials. This book discusses the properties and uses of synthetic resin adhesives, cellulose adhesives, chlorinated and synthetic rubber adhesives, and other synthetic adhesives. Textile chemists will find it valuable as a reference work and as a source of new ideas.

A.C.M.A. Proceedings

PROCEEDINGS of 47th ANNUAL CONVENTION OF ACMA; American Cotton Manufacturers Association, Charlotte, N. C.

The annual volume covering the convention of A.C.M.A. on April 30, 1943, at Atlanta, Ga., has been issued. It also gives the by-laws of the association, a list of members and a biographical sketch of the new president of the association, Hugh M. Comer.

Guide for Cafeteria Workers

THE INDUSTRIAL CAFETERIA AND RESTAURANT WORKER'S MANUAL, by Milton A. Rosenfield, National Foremen's Institute, Inc., Deep River, Conn.; price, $1.25.

New workers in industrial cafeterias,

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The versatility of SONOCO Products is not only a matter of plant and equipment—but is largely a matter of technical experience in solving new and strange problems for the Textile Industry.

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who wish to gain a working knowledge of the business, can secure valuable help from this book written by a restaurant management consultant. Older workers, who want to improve their methods, can also find many helpful suggestions in the manual At a time when new employees must be trained quickly, such a manual meets a definite need.

N.A.W.M. Bulletin for 1942

BULLETIN OF N.A.W.M. FOR 1942, Vol. LXXII; National Association of Wool Manufacturers, New York and Boston; 700 pages, $10.00.

This annual publication presents the activities of the National Association of Wool Manufacturers for 1942, a group of useful statistics relating to the wool textile industry, and a summary of reports by various bodies and acts by Governmental agencies including Government specifications for wool and part wool cloths, price regulations, current research, etc. It is a compendium of fundamental matters related to wool manufacture for 1942, substantially bound in black cloth.

Other Publications of Interest to Textile Men

PACKAGING CATALOG; Packaging Catalog Corp., 122 East 42nd St., New York; $2.50. Contains article on military packaging, chart of packaging materials under Government control, article on substitutions in fancy packaging, and other useful data.

SAFETY SPEEDS PRODUCTION; U.S. Department of Labor, Washington, D.C. This pamphlet is designed to assist overseers, foremen, and other supervisors in preventing accidents in their departments.

GUIDE TO THE PREVENTION OF WEIGHT-LIFTING ACCIDENTS; U.S. Department of Labor, Washington, D.C. This pamphlet discusses the causes of weight-lifting injuries, describes and illustrates safe manual and mechanical methods of lifting and carrying heavy loads, and contains suggestions on selection and training of employees.

SYMPOSIUM ON RADIOGRAPHY; American Society for Testing Materials; Philadelphia; $4. Sections of this book of particular interest to textile men include those dealing with the principles of the radiographic process and applications of radiography and fluoroscopy in the textile and other industries.

News of Suppliers

Scott & Williams, Laconia, N. H., has moved its New York office uptown, to the 18th floor of the Empire State Building. For a total 30-odd years the firm had been recently at 40 Worth Street and previously at 366 Broadway.

General Aniline & Film Corp., New York, has elected George W. Burpee as president. He has recently been executive vice-president of American Export Airlines.

National Starch Products, Inc., New York, will move its executive offices and research laboratory about Oct. 1 to the 9th and 10th floors of 270 Madison Ave.

Union-Special Machine Co., Chicago, has named Paul M. Mason as assistant manager of its New York office. Carl O. Nelson has been appointed to cover the Allentown, Pa., territory working out of the Philadelphia office.

Rayon Export Corp., 501 Fifth Ave., New York, announces that it is prepared to supply rayon and cotton yarns throughout Latin America. Richard Walker, export manager, is now on an extended tour through Chile, Peru, Colombia, Ecuador, Costa Rica, Guatemala, Mexico, and Cuba.

Steel Heddle Mfg. Co., Philadelphia —Vernon A. Graff, for many years with the Atlanta plant, has succeeded the late H. R. Gaffney as manager of that plant. Barney Cole has been made director of sales for the Atlanta Division. D. W. G. Macintyre, long associated with the textile industry, has been appointed a field engineer working out of the Atlanta office.

THOMAS FULLER (at left), southeastern district manager of Westinghouse Electric & Mfg. Co., being given the Westinghouse Order of Merit, awarded him by the board of directors, by B. W. Clark (at right), vice-president of the company, at the recent regional meeting of the Atlanta staff.

WHEN ED BRANCH (at right) secretary of Atlanta (Ga.) Belting Co. was commissioned lieutenant (j.g.) in the Navy, his wife (at left) took up his duties, and for the last nine months has made an enviable sales record in Mississippi, Alabama, and eastern Tennessee. She makes her home in Huntsville, Ala., and enjoys the distinction of being the only belt sales woman in her territory.

Laconia (N. H.) Needle Co.—L. P. Worcester of Chestnut Hill, Mass., has purchased the controlling interest in Laconia Needle Co. from Leon C. Huse. M. F. Pray of Milton, Mass., has been named president and Mr. Worcester, treasurer. Hobart D. Sanborn will continue to serve as vice-president, director and clerk.

Amalgamated Chemical Corp., Philadelphia, has moved into the former No. 2 plant of Ontario Dyeing Co., where the larger space will be devoted to step up its production for use on military fabrics, particularly water repellents and mildew-proofing products.

Interlake Chemical Corp., Chicago, has been formed jointly by Interlake Iron Corp. of Chicago, and Great Lakes Steel Corp. of Detroit, to break down recovered naphthalene and various tar acids into a varied line of chemicals.

Ronxite Co., Greenville, S. C., has been formed to invent and patent

now you can get

FRENCH-DRAWING RUB APRONS THAT GIVE ACCURATE yarn count

FINISHAM

- - - an "all American" product

Until 1939 rub aprons (sometimes called rubbing leathers) used on French-drawing or porcupine frames in the United States, were tanned and manufactured on the continent. World War II shut off these sources of supply and inquiries began to be made among domestic tanners for an alternate to this highly specialized type of product.

We answered the challenge by developing our FINISHAM apron. It is not a copy of something else, but in a class by itself. Within one month's time of the introduction of Finisham to the market, this apron won recognition. It is considered superior to any other type of apron used on a French drawing frame, because:

—FINISHAM produces highest-quality yarn.
—FINISHAM runs straight on rolls.
—FINISHAM maintains constant rub surface.
—FINISHAM does not stretch.

We hope to be able to keep our production even with the demand that the mills may keep supplied for the duration.

Our latest catalog sent upon request.

FINE FINISHING WITH FINISHAM

BARNES PRODUCTS

Aprons for Combing, Preparing, Finishing, and Drawing FRENCH AND BRADFORD SYSTEMS
Chrome—Brown—Special Tan

Plain and Hair-On Loom Strapping

BELTING

First-Quality Center Stock Prestretched and Manufactured for Each Drive Condition Available in All Tannages

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BARNES THE Textile Leather HOUSE

SINCE 1876

here unusual knowledge of Leather is combined with long years of Textile experience
PRONS—BELTING • FLAT • ROUND • & ACCESSORIES—STRAPPING

SMITH-DRUM CO., Philadelphia, was presented with the Army-Navy "E" award on Aug. 10. Left to right: Dr. A. J. Stoddard, superintendent of Philadelphia Public Schools, master of ceremonies; Maj. Victor Smith, U.S.A., who presented the Award; Lt. A. R. Winner, U.S.N.R., who presented the "E" pins to employees; James Montgomery, who represented the employees in accepting the award; Harry S. Drum, vice-president and general manager and Parker M. Smith, president, both of whom accepted the award on behalf of the company.

processes and to deal in cellulose derivatives and chemical ingredients. C. M. Gaffney, Jr., is president.

Owens-Corning Fiberglas Corp., Newark, Ohio, has appointed Dr. Ray B. Crepps, director of Purdue University's materials testing laboratory, to be director of the testing division of the company's research laboratories, which will be completed this fall. Under the direction of Games Slayter, vice-president in charge of research, Dr. Crepps will be responsible for all tests of Fiberglas materials, both in the developmental and finished product stages. Five new directors, elected at a recent stockbrokers' meeting in New York are: J. P. Levis, W. P. Zimmerman, H. R. Winkle, Games Slayter and Dr. E. C. Sullivan.

Textile Chemical Corp., Fall River, Mass., newly formed, will establish a plant at Somerset, Mass., for production of chemicals, including soaps, oils, cleansers, etc.

Diamond Alkali Sales Corp., Pittsburgh, Pa., has taken over control of the George Chemical Co., with C. V. Douglas as New York district manager and a number of the staff of George Chemical Co.

Gates Rubber Co., Denver, Colo., received Army-Navy "E" on Aug. 29.

Alester G. Furman Co., Greenville, S. C., has admitted Henry A. Brown to the partnership.

Daniels Machine Co., Haverhill, Mass., has elected Edgar S. Lindsay, of Brockton, as treasurer. Mr. Lindsay has sold his interest in the Weymouth (Mass.) Art Leather Co., but will continue to represent that concern in a sales capacity.

Calco Chemical Division of American Cyanamid Co., Bound Brook, N. J., has won its second Army-Navy Production Award. Sidney A. Moody, for many years a department sales manager, has been made assistant general manager in charge of all departments.

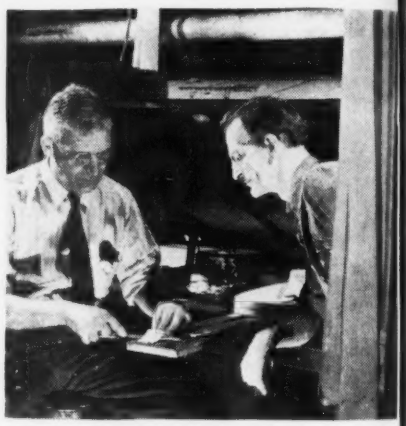
R. D. Cole Mfg. Co., Newnan, Ga., has been awarded the "M" pennant of the Maritime Commission for meritorious production for prefabricated ship parts. Governor Arnall spoke; A. D. MacLean, USMC, made the award.

Sherwin-Williams Co., Cleveland, Ohio, has appointed Dr. Robert F. Ruthroff as director of research.

Liberty Mutual Insurance Co., Boston, Mass., has collaborated in preparation of a motion picture designed to combat accidents due to carelessness in the home, on the highway and in the factory. It is called "Smash the 7th Column" and is planned to reduce preventable losses of this country's man power and woman-power.

Monsanto Chemical Co., St. Louis, is increasing the manufacturing facilities at its Springfield, Mass., plant for producing Resinox phenolic resins, following WPB approval of the project.

Gastonia (N. C.) Belting & Supply Co., Inc., has been placed under entirely new management, with D. L. Friday, as president; T. F. Suggs as vice-president, and Miss Lelia Friday as secretary and treasurer. Mr. Friday will continue his connection with the



NEW SPLICING TECHNIQUE SPEEDS WAR PRODUCTION PROGRAM—A new production-speeding technique for splicing cotton belting is shown by its originator, Max Kholos, to fellow worker Charles E. Sanford. Mr. Khalos, a veteran of 27 years service with Westinghouse Electric & Mfg. Co., worked with company engineers to develop a method of cutting and cementing which enabled cotton-web belting to replace war-scarce leather belts then used by Westinghouse on many machines. He was rewarded with an initial $1200 check and a patent on the method. Westinghouse officials, believing the idea a valuable contribution to the war production program, have opened a school to teach the technique to men from other industries to whom it is offered without charge for the duration of the war.

WARWICK CHEMICAL CO., West Warwick, R. I., has purchased property at Wood River Junction, R. I., from Walker Chemical Co., which extends over 25 acres on the main line of the New Haven Railroad. Plant was erected in 1940. It is being rebuilt and will be devoted to the manufacture of fine chemicals.

Projected through the War Haze

Old names with new faces will be a fact when newborn textile developments are released after the war. Competition will again be keen. The need to establish identification will be greater than ever before. Get a head start. Look to future needs today.

With American born ingenuity Kaumagraph research has projected their ideas ahead. Not hidebound identification for current needs, to be tossed out of the window after the war. But identification that will bridge the gap. Marking products and methods developed by Kaumagraph in use today for war materials quickly converted to new fabrics, new textures—tomorrow.

As you are now projecting your own post-war plans, it may be wise to learn about the new Kaumagraph Identification developments. Why not send for a Kaumagraph Identification Man today?

Identification Headquarters since 1902

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Wilmington, Delaware

Dry Transfers
Prestomarks
Embossed Seals
Lithographed packaging

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Cocker Machine & Foundry Co. as secretary and sales manager, and Mr. Suggs will likewise retain his position as engineer for the Cocker company.

Monsanto Chemical Co., St. Louis, Mo., has elected William R. Rand, vice-president of the company and general manager of the Merrimac Division with headquarters at Everett, Mass., to the executive committee of the company, with headquarters in St. Louis. Daniel S. Dinsmoor, assistant general manager of the Organic Chemicals Division with headquarters in St. Louis, has been elected a vice-president of the company and will succeed Mr. Rand as general manager of the Merrimac Division.

Phoenix Reed Co., a new concern, of which Philip H. Brakley is manager, is opening a plant in the central yard of Amoskeag Industries, Manchester, N. H.

Interchemical Corp., New York, has added E. T. Fritzsching to its staff. Mr. Fritzsching has resigned as vice-president and general manager of Rare Chemicals, Inc. He has joined Interchemical in connection with the development and promotion of new products in the fine chemicals field. Interchemical Corp. and several operating divisions and subsidiaries, have moved to the 16th floor of the Empire State Building, New York. The new location will house the administrative offices of Interchemical Corp., International Printing Ink Division, In-Tag Division, Ault & Wiborg Corp. and the Export Division.

E. T. FRITZSCHING, fine chemicals expert, who has joined Interchemical Corp.

Clinton Sales Co., Inc., has appointed C. Morganstern as manager of its New England office at Somerville, Mass., succeeding P. S. Bolton, resigned. Mr. Morganstern for 2½ years represented Clinton (Iowa) Co. at Cincinnati.

Metallizing Engineering Co., Long Island City, N. Y., has recently awarded prize war bonds totalling $1800 in its third conservation contest for outstanding machinery maintenance or parts salvage with the metallizing process.

BRISTOL CO., Waterbury, Conn., received the Army-Navy "E" award on July 29. Left to right: Joseph E. Talbot, Congressman, 5th Connecticut District, who acted as master of ceremonies; Commander Edward N. Parker, U.S.N., who made the flag presentation, Howard H. Bristol, president, who accepted the award on behalf of the company, Walter H. Roberts, oldest employee in point of service, who accepted the "E" pins for the employees, and Capt. G. O. Waeterling, U. S. Army, who presented the pins.

Sylvania Industrial Corp., Fredericksburg, Va., has received the star to add to its Army-Navy "E" Award pennant.

Pantasote Co., New York, and **Pantasote Leather Co.,** Passaic, N. J., have elected Peter J. Hickey, general sales-manager of the first named company, to the office of vice-president.

Pennsylvania Salt Mfg. Co., Philadelphia, has assigned Edgar G. Warren to the heavy chemicals division to take over the Philadelphia territory formerly covered by Lieut. E. M. Wilson before he entered the service.

Dow Chemical Co. has appointed Clayton S. Shoemaker as eastern sales manager and Frederick A. Koch as assistant eastern sales manager. Ralph E. Dorland will continue as manager of the New York sales office. New offices will be opened in Boston and Philadelphia. Alexander Leith, Jr., will be manager of Philadelphia office, and A. A. Lawrence, manager of Boston office.

CLAYTON S. SHOEMAKER, newly appointed eastern sales manager of Dow Chemical Co.

Carrier Corp., Syracuse, has appointed C. Robert Powers as production control manager of the manufacturing division. He will be responsible for manufacturing and deliveries.

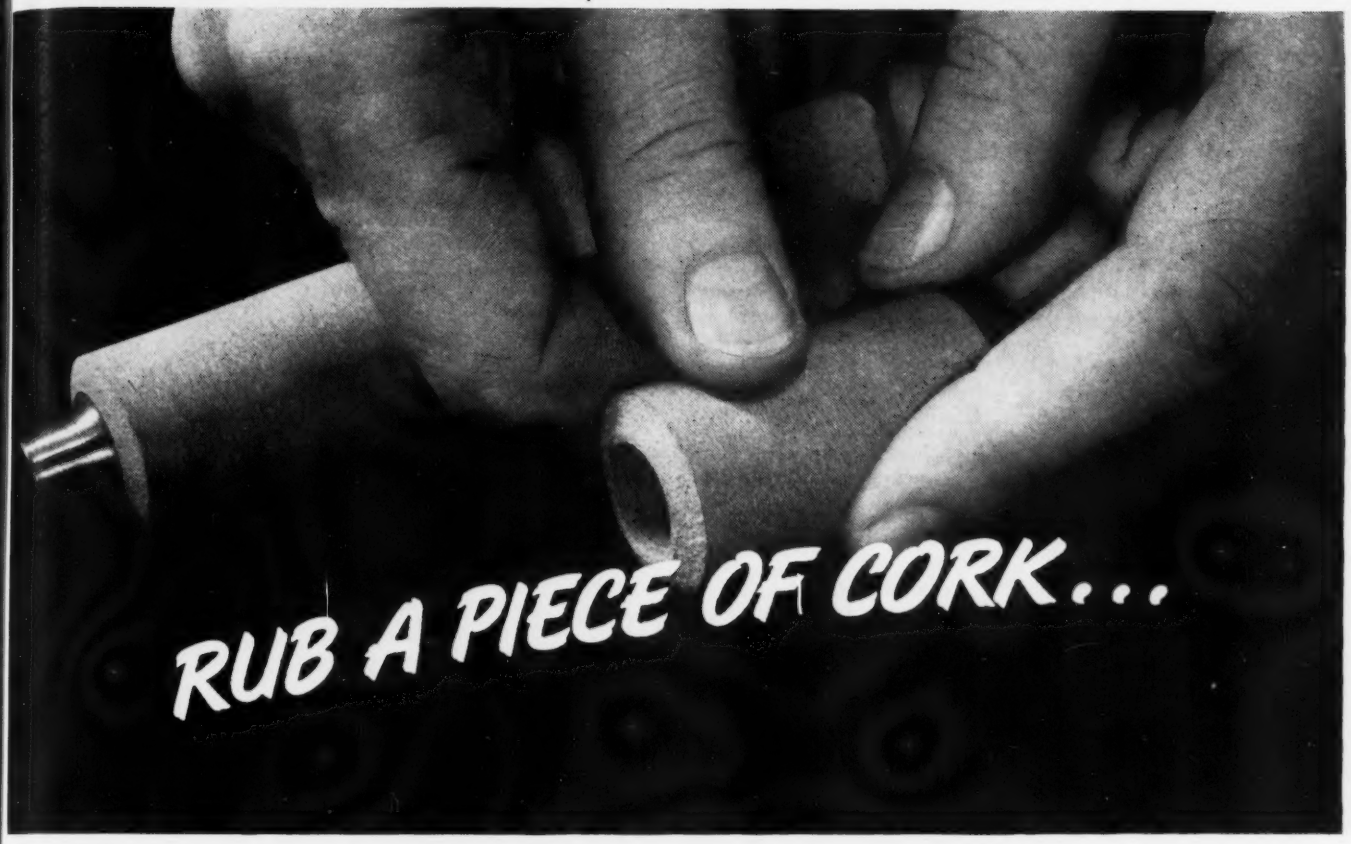
Elgin (Ill.) **Softener Corp.** has appointed E. W. Scarritt as sales manager. With the company since 1927, he has been in the field for 18 years.

McLarty Business Films, Buffalo, N. Y., is offering a new service to industry by making available an ultra-high-speed motion picture camera capable of taking 3000 pictures per second for research and study of materials and processes. Among other applications are: behavior of materials during elongation, reactions at point of rupture, vibration and impact, formations of liquids ejected from orifices, thread breaks and causes of failures at maximum speeds. When reproduced, pictures of behavior involving 1½ seconds run for 4½ minutes.

Westinghouse Electric & Mfg. Co. has appointed Ralph C. Stuart as manager of the Lamp Division with headquarters in Bloomfield, N. J.

Wickwire Spencer Offers Bond-Drive Poster

As part of its contribution to the third War Bond Drive, the Wickwire Spencer Steel Co., New York, is offering to War Bond Committees, publishers, and others, promotional material featuring the work of famous artist Boris Artzybasheff. The material offered includes reproduction privilege, glossy prints for reproduction purposes, three-column width newspaper mats, two-color posters measuring 44" x 22" and handbills. The picture dramatizes the immediate governmental use of bonds for purchase of munitions, and the post war purchase of peace time comforts and luxuries by bond holders.



. . . and you'll know why Armstrong's Cork Cots SERVE THE MOST SPINDLES

RUB your thumb—*hard*—along the velvety smooth surface of a cork cot. Feel the resistance—the *friction?*

Nature gave cork a unique cellular structure. Millions of microscopic cells give a cork cot its high coefficient of friction.

It's this "grip" in Armstrong's Cork Cots that assures uniform drafting . . . which means strong yarn. This same friction prevents "eyebrowing" and thus helps keep yarn free of slugs.

In making cork cots, Armstrong combines cork's superior "grip"—plus its compressibility, resilience, toughness, and imperviousness to liquids—with the uniformity of a manufactured composition. That's why mills using Armstrong's Cork Cots produce high-quality yarn, get efficient machine performance, better running work, and enjoy the lowest roll covering costs.

And that's why more spindles, over 9,750,000 of them, are equipped with Armstrong's Cork Cots than with *any* other roll covering.

You need no priority rating to get prompt delivery of Armstrong's Cork Cots. (More cork is available than ever before.) To find out what these cots can do for you, write for a free copy of the fact-filled booklet, "Modern Textile Roll Coverings." Address *Armstrong Cork Company, Textile Products Section,* 8309 *Arch Street, Lancaster, Pa.*

ARMSTRONG'S CORK COTS

ACCOTEX COTS (A) ACCOTEX APRONS

ARMSTRONG IS HEADQUARTERS FOR

ROLL COVERINGS
Cork Cots · Accotex Cots (synthetic rubber) · Cork Covers · Loom Take-Up Roll Coverings

ROLL SHOP EQUIPMENT AND SUPPLIES

ACCOTEX LONG DRAFT APRONS

TEMPLE ROLLS · CORK CONES

LOOM CLUTCH FACINGS

WINDER SPINDLE HEAD COVERS

. . . and other textile mill supplies

FREE FOR THE ASKING

Readers interested in literature reviewed on this page may secure copies by writing to Textile World, 330 West 42nd St., New York, giving their company connection, title of item desired, and date of issue in which it was reviewed.

"Cotton in the Post-War World," is the title of a booklet published by the New York Cotton Exchange. This booklet contains a transcript of proceedings of the National Cotton Conference-Forum held this summer at Memphis, Tenn.

Traveling cranes for use in congested areas about mills, warping department, the cloth room and the weave shed are discussed in an article appearing in the July issue of *The Swirling Column*, published by American MonoRail Co.

Mill maintenance men will be interested in an article entitled, "How the Painter Can Help Conserve Manpower," which appears in Vol. 36, No. 2 of *The Dutch Boy Painter*, published by National Lead Co. This article points out how all painters can assist in reducing the number of accidents in industrial plants, thereby conserving American manpower.

"Five Commercial Types of Synthetic Rubber," is the title of a 40-page booklet issued by the United States Rubber Co. Buna S Type and Buna N type, the Neoprenes, Butyl Rubber and the Thiokols are covered along with tables of comparative properties and much information on their manufacture and chemical structure.

Measuring and control instruments of various types are illustrated and described in Bulletin No. Z6200, offered by Wheelco Instruments Co.

Water emulsions of polyvinyl acetate are covered in a technical bulletin issued by The R. & H. Chemicals Department of E. I. du Pont de Nemours & Co. Grades available, characteristics, properties of emulsion, films and coatings obtainable from water emulsion and uses and suggested applications are contained in this technical bulletin. Technical executives will be interested in reviewing that section which covers the application of polyvinyl acetate emulsions in the textile industry as adhesives for binding threads and the like.

"Intersecting Gilling Improves Yarn Quality—Speeds Worsted Production," is the title of an interesting article appearing in the July issue of *The Traveler*, published by Victor Ring Traveler Co. This article should assist worsted men as it points out some ways of speeding worsted production.

The grinding of new cylinders is discussed in a recent item appearing in the August issue of *The Howard Way*, published by Howard Bros. Mfg. Co.

Thermometers, recording thermometers and principles of operation as well as practical information regarding ranges, charts, bulbs and tubing are covered in Bulletin T800, offered by The Bristol Co.

Leather belting conservation is covered in a 20-page booklet issued by Baldwin Belting & Leather Co., Inc. Such items as proper selection, correct installation and maintenance of leather belts, methods for aligning shafting and pulleys, cleaning and dressing leather belts, horsepower ratings for oak-tanned flat leather belting, belt speed and recommended pulley diameter tables, belting formulas and belting specifications are contained in this booklet and should prove to be very helpful to textile mill maintenance men.

Standardized control centers, including motor control centers and switchboard control centers are described in a circular issued by Trumbull Electric Mfg. Co. These standardized prefabricated units save space, and reduce installation and operating costs.

"Fiberglas, a New Basic Material," is the title of a 16-page booklet offered by Owens-Corning Fiberglas Corp., describing the many uses of this material. Textile men will be interested in the portions of the booklet dealing with manufacturing processes in which is described and illustrated the methods used in manufacturing Fiberglas. Also of interest are those sections of the booklet dealing with the use of Fiberglas as an insulating material by the Army and the Navy, also the use of Fiberglas fabrics by the armed forces for parachute flare shields, Navy diving suits, electrical insulation, etc.

Hydraulic elevators suitable for mill installation are discussed in Bulletin 96-J offered by Revolvator Co. Ramp eliminator types of hydraulic elevators and lift truck types of elevators are only two of the numerous types described and illustrated in the folder.

The Scotch hook reed used in slashing rayon and the cotton system of rayon warp sizing are covered in an article entitled, "Rayon Warp Sizing," and appearing in the July-August issue of the *Rayon Warp Sizing Specialist*, published by Charles B. Johnson Machine Works.

For automatic control of temperature, pressure, flow or liquid level and also for gradual increases in temperature or pressure, a new instrument is described in Bulletin No. 87-1, published by Brown Instrument Co. This bulletin describes the principle of the automatic time-pattern controller, the operation of this automatic equipment and its applications.

Feed water conditioning is discussed in bulletin 4008 titled, "Boiler Feed Water Conditioning and Chemistry," published by Cochrane Corp. Important factors such as the characteristics of the hot process water softener, zeolite softener, removal of gases from boiler feed water, embrittlement and carry-over are discussed. Also such material as interpretation of water analyses, conversion factors, chemical reactions, tables showing formulas, equivalent weights, etc. are contained in this bulletin.

Squirrel cage and induction motors ranging from 1/6 to 600 hp. are illustrated and briefly described in Form 344-A, offered by Century Electric Co.

Cotton Chats, published by Draper Corp. have devoted their July issue to describing the part that Draper employees are playing in the armed forces.

Supply Lines, Vol. I, No. 1, July 1943 is the first issue of a monthly publication by and for the employees of the Philadelphia Quartermaster Depot. The initial issue contains a salute to *Supply Lines* by Colonel Robert C. Brady, then Commanding Officer, and also an announcement from the War Department stating that the Philadelphia Q. M. Depot wins a star award.

Control of tension and pressure for pineapple cones of hosiery-twist rayon and an improved roller bail pineapple cone attachment are two of the items discussed in *Getting the Most from Winding*, No. 38, issued by Universal Winding Co.

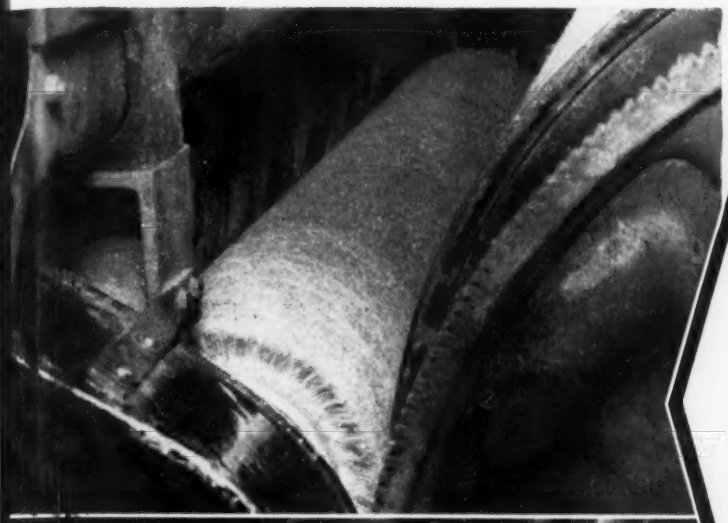
Air Express wartime facts and figures are discussed in a folder issued by Air Express Division of Railway Express Agency titled, "How to Ship by Air Express During Wartime." Such items as how to get priorities, list of priority offices, package weights, sizes, etc. are contained in this folder and will be of great assistance to all textile men making use of this means of transportation.

Motors are described and illustrated in a series of leaflets offered by Crocker-Wheeler Electric Mfg. Co. Form SCF-1 describes the squirrel cage motors and illustrates the various enclosures and degrees of protection available for such motors ranging from ½ to 75 hp. Form SFC-2 describes direct current motors and illustrates the various enclosures and degrees of protection available in such motors ranging from ¾ to 7½ hp.

Textile mill men will be interested in learning that belting, mechanical and textile leathers are exempted from Conservation Order M-328, as described in the June-July issue of *GraKnight Life*, published by Graton & Knight Co.

Sizing rayon staple warps is covered in the June issue of *Rayon Warp Sizing Specialist*, published by Charles B. Johnson Machine Works. A typical drying temperature range for use with rayon staple fibers is given in this article.

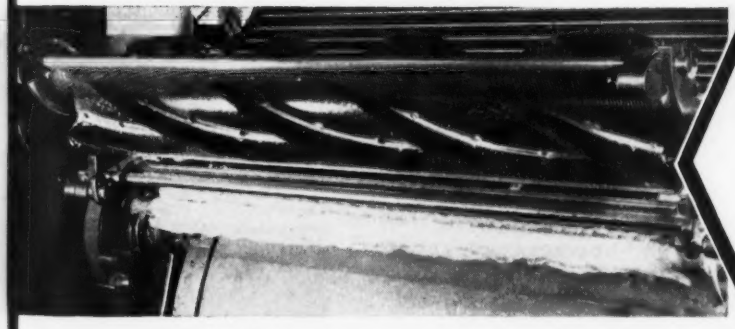
"FULLERGRIPT" is the Fuller Brush Company's patented method of gripping brush materials in a rust-resisting metal backing. The machine-controlled placing of materials in the metal backing results in a uniformly solid brush face, which can be fastened onto metal cores, or arbors. The density of the brush and the durability of the holding method means long life, better performance and serviceability.



All types of Brushes, Machine or Hand, for Textile and Finishing Mills.

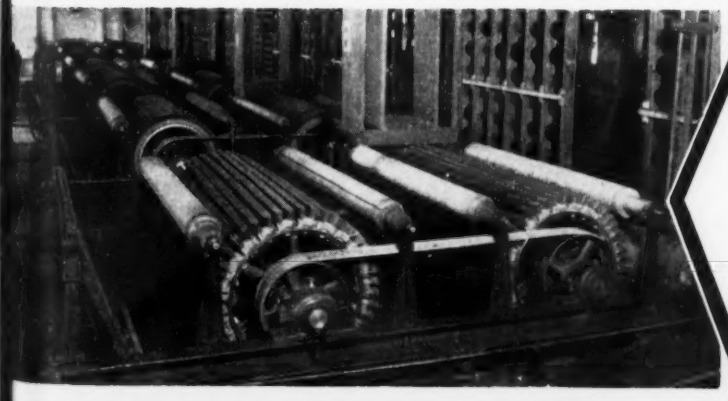
WORSTED-CARD BRUSHES

FULLERGRIPT Worsted Card Brushes, because of the densely packed brush materials, push the wool—*all* of the wool—down into the pins of the Morel clothing, leaving the burrs on top of the pins, free of fiber, ready for easy removal. (See cut.) Fullergript cylindrical brushes are proving helpful in three ways on worsted cards: As *feed roll brushes* to start the wool properly in the teeth of the first lickering; as *Morel brushes* to disentangle the burrs from the wool; as *transfer brushes* to carry the wool to the Morel roll and disentangle the burrs at the same time.



COTTON-FLAT CARD-BRUSHES

RIGID, metal-backed brush strips, pre-formed to the correct degree of spiral, can be easily attached to your present wood cores. The density of the brush with no gaps, prevents the accumulation of lint or lumps on your cards, and the stripper is cleaned more thoroughly. This means better carding.



THREAD DRESSERS

DISCARD wood lags with their variation in weight, warping, splitting, and falling tufts. Use Fullergript for better ventilation and increased production. Their are no gaps or tufts in Fullergript to allow threads to ride on the core. These brush strips are set in pairs equally spaced around the periphery of the spiders, and are easy to install. Their production life is longer because of the dense, massed bristle filling.

The FULLER BRUSH Company

3594 MAIN ST., INDUSTRIAL DIVISION 8C, HARTFORD, CONN.

The UNIVERSAL System of Nylon Sizing and Coning

UNIVERSAL No. 250 NYLON SIZING MACHINE

An extremely simple design for producing large-diameter tubes of uniformly-sized nylon yarn. The diameter of the bakelite tube is close to the diameter of the finished package, so there is little change in yarn speed. A simple method of control keeps tension, which is applied *before* sizing, at a minimum.

Thread guides are easily removed for cleaning. A special tube holder, accurately made to prevent vibration, permits quick, effortless loading and doffing.

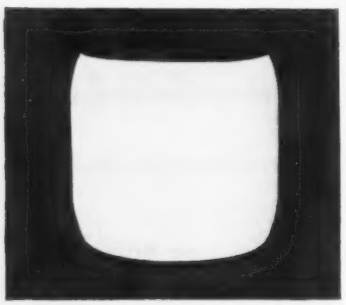
The percentage of size pick-up is easily and accurately maintained by controlling the amount of yarn contact at the sizing roll and the speed at which the roll turns. The solution is introduced at one end of the gangs and is constantly circulated. The sizing roll is oscillated slowly to distribute wear.

UNIVERSAL No. 50 NYLON CONING MACHIN

The No. 50 Machine for winding Nylon is equipped with special, simple Pineapple Cone attachment similar to that us on the Sizing Machine. The Roller Bail Holder is reinforced guarantee that the Bail will be true-running.

The entire machine is designed to keep tension low. The ya travels past the Emulsion Roll almost in a straight line from t supply tube. Yarn contact points have been purposely planne to minimize tension.

Adjustments are easily made to obtain the desired amount oil pick-up by means of simple changes in the speed of the Emu sion Roll. An Auxiliary Tension Guide placed below the Emu sion Trough leads the yarn to the proper point of contact wi the roll. The rolls are made of stainless steel.



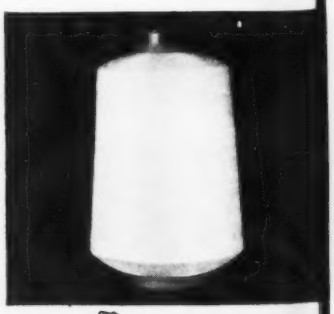
UNIVERSAL NYLON SIZING TUBE

A special heart-shaped cam, controlling all spindles, alternately lengthens and shortens the strokes of the Traverse Guide to produce a tube with tapered selvedges. The special scatter-wind means that the yarn will deliver freely from the tube on the coning machine. No redrawing is necessary. Uniform drying and conditioning are obtained.

UNIVERSAL PINEAPPLE CONE OF NYLON

On knitting machines and in warping creels, the Universal Pineapple Cone is an ideal supply. The predetermined shape of the cones is uniformly the same. If desired, changes in the tapers at the nose and base of the cone can be quickly produced.

See our catalog in TEXTILE WORLD YEARBOOK



Universal Winding Company

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PROVIDENCE
BOSTON
PHILADELPHIA
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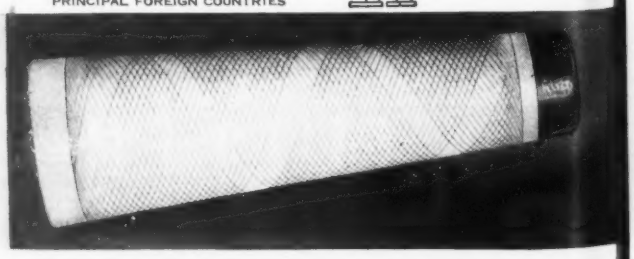
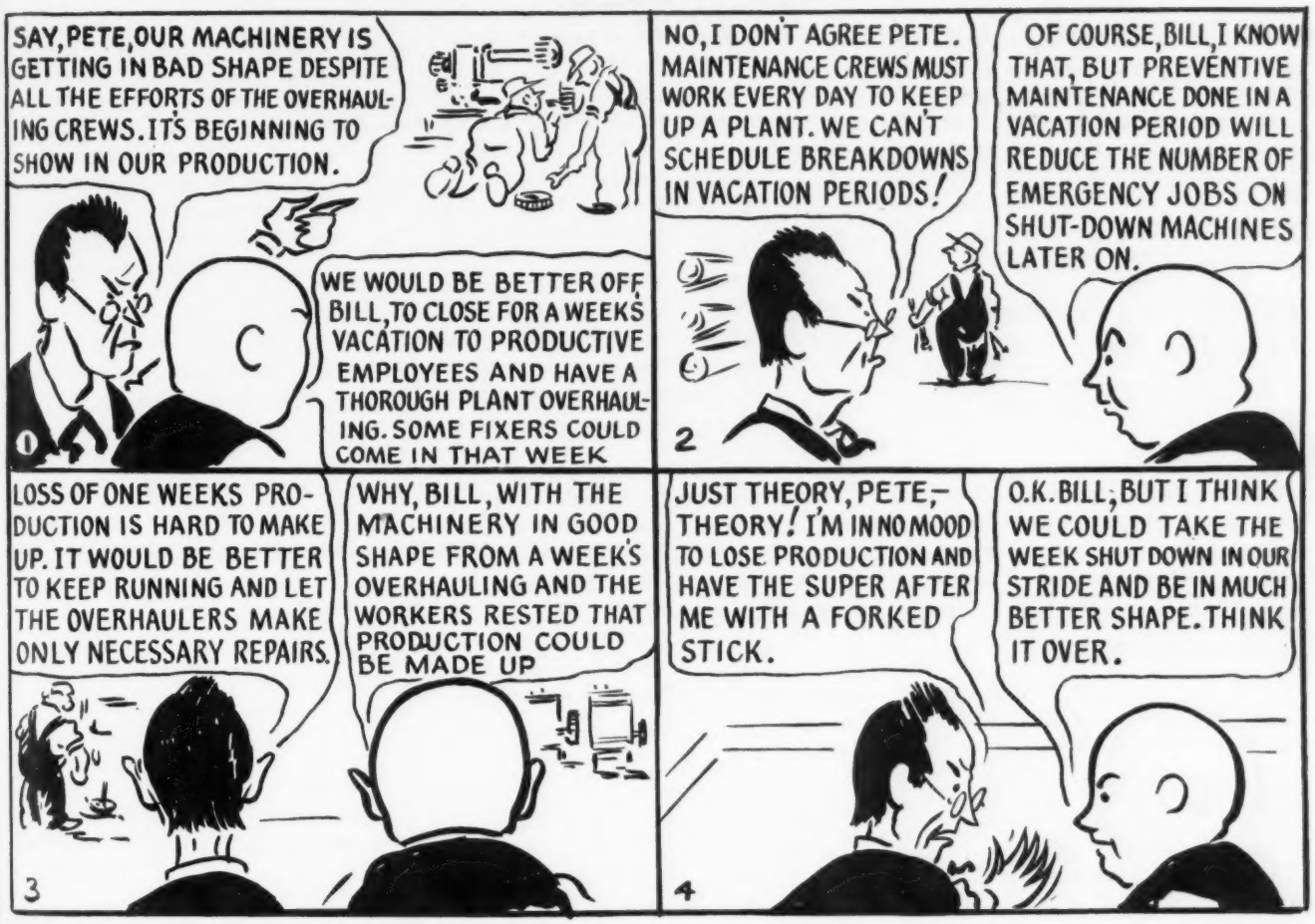
MORE THAN 90% OF ALL SYNTHETIC FILAMENT YARN ON CONES IS PRECISE-WOUND ON THE FLEXIBLE 50



PETE & BILL

VACATIONS, OVERHAULING AND PRODUCTION


SAY, PETE, OUR MACHINERY IS GETTING IN BAD SHAPE DESPITE ALL THE EFFORTS OF THE OVERHAULING CREWS. ITS BEGINNING TO SHOW IN OUR PRODUCTION.
WE WOULD BE BETTER OFF, BILL, TO CLOSE FOR A WEEKS VACATION TO PRODUCTIVE EMPLOYEES AND HAVE A THOROUGH PLANT OVERHAULING. SOME FIXERS COULD COME IN THAT WEEK
1
NO, I DON'T AGREE PETE. MAINTENANCE CREWS MUST WORK EVERY DAY TO KEEP UP A PLANT. WE CAN'T SCHEDULE BREAKDOWNS IN VACATION PERIODS!
OF COURSE, BILL, I KNOW THAT, BUT PREVENTIVE MAINTENANCE DONE IN A VACATION PERIOD WILL REDUCE THE NUMBER OF EMERGENCY JOBS ON SHUT-DOWN MACHINES LATER ON.
2
LOSS OF ONE WEEKS PRODUCTION IS HARD TO MAKE UP. IT WOULD BE BETTER TO KEEP RUNNING AND LET THE OVERHAULERS MAKE ONLY NECESSARY REPAIRS.
WHY, BILL, WITH THE MACHINERY IN GOOD SHAPE FROM A WEEK'S OVERHAULING AND THE WORKERS RESTED THAT PRODUCTION COULD BE MADE UP
3
JUST THEORY, PETE,— THEORY! I'M IN NO MOOD TO LOSE PRODUCTION AND HAVE THE SUPER AFTER ME WITH A FORKED STICK.
O.K. BILL, BUT I THINK WE COULD TAKE THE WEEK SHUT DOWN IN OUR STRIDE AND BE IN MUCH BETTER SHAPE. THINK IT OVER.
4

Is maximum production obtained by operation without vacations, or by devoting a vacation week to a complete plant overhauling job?

Letters from Readers

The Dog-Stand Racket

"Reducing Worker Fatigue"
Pete & Bill, July, 1943

Dear Pete and Bill:

You both have seemed to realize that the dog-stand, drink-stand, or dope-wagon, or other similar arrangements are inefficient and hard on the workers. To my way of thinking, they are just another racket and hurt the worker and plant very much. True the person having the concession pays a good price for it and relieves the management's mind as to its operation, but in the end management must worry about its harmful effect just the same. Why, not many years ago I was in a mill where a concession was operated in a general store adjacent to the plant where beer was served. Loomfixers, and section hands, and other employees would often get too much and go back to work intoxicated.

Of course mill men wouldn't stand for that now, but it is almost as bad if employees fill up on soft drinks and hamburgers.

It seems to me any enlightened superintendent or overseer would realize the value of giving the employees wholesome meals at cost and a place to relax for a few minutes during working hours. Fortunately the war has put the management in the position of having to get the best out of each employee constantly day in and day out, and this can be accomplished only by caring for workers as scientifically as you would any highly-complex machine.

P.S. (*N.C.*)

Post-War Pot of Gold

"The Overseer and Post-War Planning"
Pete & Bill, August, 1943

Dear Pete and Bill:

For once I agree with Bill in keeping his eye on the ball and leaving post-war plans out for the duration. I have two very good reasons for this as follows:

First, foremen and minor executives cannot spare the time to sit down and work out plans for the post-war period and still do a good war-production job. When these sort of folks do a lot of planning in the end it only means that they have a good excuse to loaf since

they don't expect their plans to be given much consideration. Second, when the plans are all made and in shape for the post-war period, they must be revised and changed and then discarded because most of them won't be hard-headed business plans that take into account economics, human nature, and competition between individuals and nations.

For these reasons I advocate the sensible, down-to-earth policy of looking out for your own, your company's and your nation's interests at all times. To do this any plans made before the war will be stale or useless for the basis of decisions in a post-war world we know nothing about.

DREAM BUSTER (*Tenn.*)

Rest Rooms, Cafeteria Build Morale

"Reducing Worker Fatigue"
Pete & Bill, July, 1943

Dear Pete and Bill:

Speaking as one with many years of experience in mill work, who can look back to the days when cafeteria installations, rest-rooms, and prescribed rest periods were unheard of, I cannot too highly rate the advantages to the employee—with recurring benefits to the employer—of these modern arrangements.

The few minutes allowed a worker for a cup of coffee at the lunch-bar, or a cigarette in rest rooms where it is permissible to smoke, break the fatigue tension. The worker goes back to the job better equipped for it.

Then, too, there's a feeling of good will toward the management which extends such considerations—an important factor in employer-employee relations any time, and more especially today.

ANNIE E. DE SOUSA (*Fla.*)

Rest and Good Food Needed by Workers

"Reducing Worker Fatigue"
Pete & Bill, July, 1943

Dear Pete and Bill:

In picture No. 1 you are both right about dog-stands wasting a worker's time. There are too many chances for them to get away from the job and hang around talking or eating at the dog-stand. In picture No. 2 Tom, the super of the big plant, has the right idea in spending his money on a cafeteria where workers can get a good meal in a short time without loafing. In such a place a worker can relax away from hard, grinding jobs and at the same time get healthful food not obtainable from dog-stands.

Though I agree with Bill's idea in No. 3 picture in not pampering the help, however (in No. 4 picture) I must say that both of you look like you are tired and need a rest.

MRS. E. TOOLEY (*N.Y.*)

Need a Rotating Committee

"The Overseer and Post-War Planning"
Pete & Bill, August, 1943

Dear Pete and Bill:

My suggestion would be to appoint a rotating committee, choosing two from each department every three months and have meetings once a month. This gives everyone an opportunity to think and talk together at these meetings and get full plant cooperation. I believe Pete's ideas are sound but they are too narrow to do the plant much good as a whole.

When the committee is formed it should be sponsored by the plant superintendent, who should attend some meetings and help the committee organize properly and teach them something about constructive thinking and planning. Then overseers like Bill must cooperate and timid workers learn to think constructively and get up on their feet and express themselves.

Even if your plans for the post-war don't pan out, you have taught some of your employees to think and plan constructively and to learn the rules of meetings. In addition you may kindle the spark of ambition in some of your folks and that might be worth more than all your post-war plans.

OLD SUPER (*Ala.*)

LETTERS TO PETE & BILL are paid for when published without regard to length. We use letters (not over 200 words) discussing material in this department or any other pertinent matter. Contributions of greater than specified length may be given consideration as articles. Suggestions for the Pete & Bill dialogue are also welcome and if used will be paid for. If these pages interest you—contribute something to them to interest others. Address PETE & BILL, Textile World, 330 West 42nd St., New York.

Memories of Old Man Carelessness—*By Martha Pittenger*

No. 9. AS THE BACK IS BENT

I licked my finger with my tongue and turned another page. Here is what I would call one of those perfect accidents, which on first thought are nothing to get excited over, yet which cause lost time and occur only when the victim has been paying too much attention to me.

Jim, I will call him, saw a man in his department about to lose his grip on a heavy box and ran to his aid. He didn't take time to remember to hold the weight with the pressure on his legs, instead of his back. Jim was standing in an awkward, half-twisted position, when he grasped the box. No sooner had his hands caught hold, than he turned loose, with an agonizing sharp pain in his back. On the doctor's examination, Jim had suffered a torn ligament which kept him in bed for several weeks.

I sorta thought about the lines, "As the twig is bent, so is the tree inclined." And from now on, Jim will remember "As the back is bent, so is my strength impaired."

I also began to worry lest some day these fellows begin to pay more attention to the little things; then the big ones would never get them injured. Then too, my record book would never have gone beyond the first page. Instead my business has been grand.

KINKS & SHORT-CUTS

A $25 WAR BOND FOR YOUR IDEA

A $25 War Bond will be awarded each month for the most useful "kink" published in this department. This contest is open to all readers of TEXTILE WORLD, and there is no limit to the number of entries any one person may make.

Contributions must be received not later than the last day of the month to be eligible for the award for the second succeeding month. Items may pertain to production methods, mill engineering, safety, cutting costs, improving quality, speeding up production; in brief, any little device, stunt, kink, or short-cut which you have tried out in your own mill and which you believe will be helpful to other mill men. The items should be short, preferably not over 300 words. Previously published material is not eligible for the award. Judges of the contest are the editors of TEXTILE WORLD.

TEXTILE WORLD shall have the right to publish any item submitted. Items which are published will be paid for at our regular rate for this type of matter with extra payment for appropriate sketches or photographs. The sketch you submit need not be a finished drawing.

Contributions should be addressed to: Technical Editor, TEXTILE WORLD, 330 West 42nd St., New York.

Single-End Machine Speeds Up Training of Learners

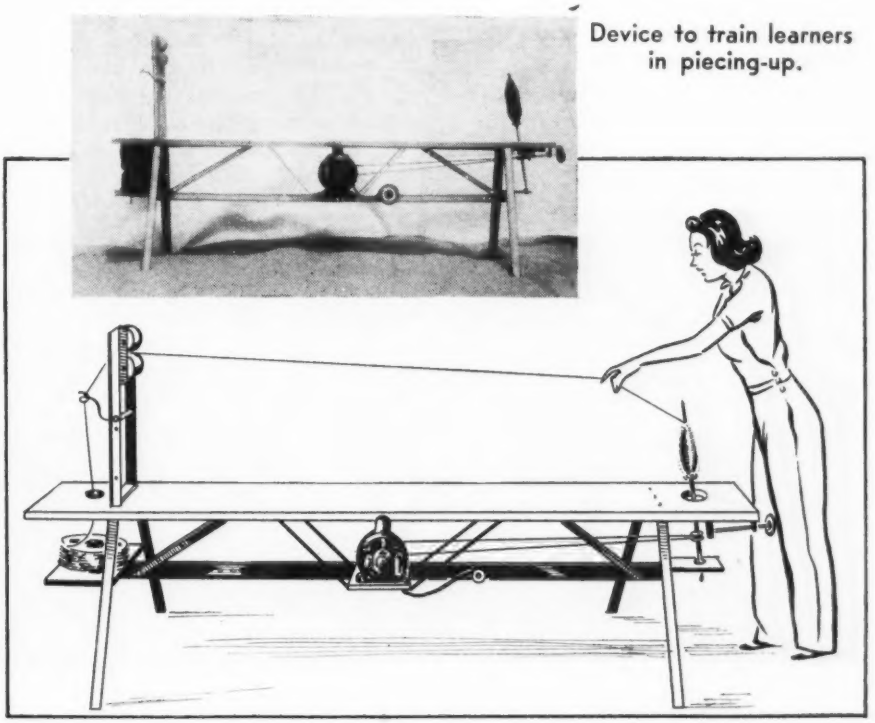
THIS MONTH'S PRIZE WINNER

Following the adoption of the Job Instructor Training program in our plant I developed the following methods for teaching girls to do the work required of spinners on mules. Like many other woolen mills equipped with mule spinning, we had suffered a loss of manpower, the result obviously affecting our production considerably. In order to bring our spinning production up to maximum, we had to train women to operates the mules.

In training women for mule spinning, we found that it took several weeks to teach them to piece-up ends on the mule. This was mostly due to fear of catching their fingers in the faller wires. We also noticed that once the women became proficient in piecing-up ends, it was then only a matter of two weeks before they were able to operate a mule by themselves. In order to cut down the time of training spinners, I devised a machine on which the spinners could learn to piece-up ends before being assigned a job on a mule.

This device is made up of a frame similar to a sawhorse. On one end of the frame is fastened a spindle, and on the other end is placed a pair of delivery rolls with a handle attached to one roll. Beneath the frame is fastened a 1/8-hp. motor to drive the spindle at 300 r.p.m. To supply roving for this device, the card room makes a spool of roving about 6 in. in diameter. The head of the spool is then removed, and the rolls of individual ends taken from the core of the spool. One of these rolls of roving is then placed on a shelf at one end of the machine frame.

To operate this device the end of the roving is then pulled out of the center of the roll, carried up through a guide, and started through the delivery rolls. A length of roving long enough to reach the spindle at the opposite end of the frame is drawn through the feed rolls by means of a hand crank on the lower feed roll. The motor is then started and the roving placed on a bobbin, which is turning with the spindle. As



Device to train learners in piecing-up.

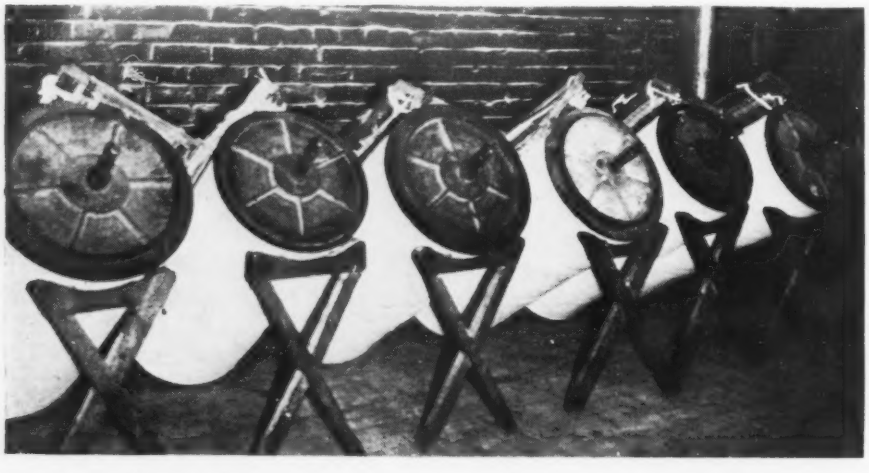
soon as the roving is placed on the bobbin, spinning begins, and the learner is then shown the proper method of piecing ends. As there is no winding device or control on the spindle, a learner can make piecings continuously, using the same yarn and roving until it becomes too short. The learner then winds another length of roving through the feed rolls, and the process is repeated.

The main advantage of this method of teaching over the old is the fact that the learner while learning is only using one spindle instead of the 300 spindles on a mule. In this way the learner is taught the proper way to piece up ends before she tries to operate the machine. We found that the old method of teaching required anywhere from four to eight weeks to break in a new girl as a spinner. The new method reduced the learning period to a total of three weeks. Bad work was eliminated and there was no interference with production.

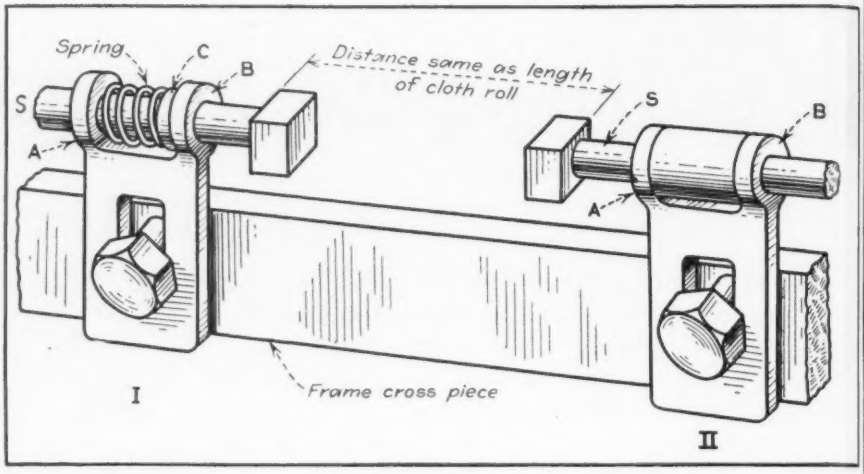
RONALD JALBERT, *Union, N. J.*

Protecting Drawn Warps

Warps with drawn in harnesses that are being held for the looms can be seriously damaged by contact with the floor, loom beams, trucks, etc. One weave room overseer found that propping one end of a warp up at an angle of 30° to 45° prevented warp damage, to a large extent. The X-shaped prop is made of pieces of 2 by 4 in. wood, bolted at the centers and braced in an X shape by a wooden cross piece at one end. The cross piece is cut out to fit the circumference of the warp and is covered with leather to prevent injury to the yarn. These props can be made in the average mill shop at very little expense and will save many times their cost. Picture below shows a group of these pro,,s in use.—H. K. (*S. C.*)



X-shaped supports prevent warps from being damaged.



Brackets for holding cloth roll with square ends.

Bracket for Cloth Rolls

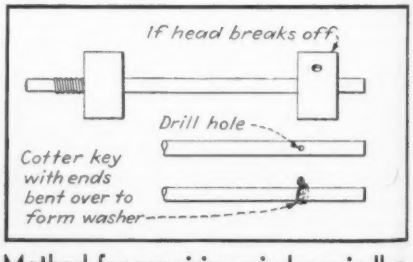
Shearing machine operators must insert a square bar through a cloth roll, if a mill is using rolls with a square center hole, when unrolling the cloth to form larger rolls to run through the shear. The inconvenience of handling and lifting the heavy square bar can be eliminated by making brackets, as illustrated and fastening them to the crossbars of the roll-making machine.

Bracket I has a spring which is held in place by ball bearing housings *A* and *B*. A collar *C* is fastened onto shaft *S* between the spring and ball bearing housing *B*. This collar prevents the shafting *S* from being forced out when the pressure of the spring forces the shaft *S* back into its normal position after a roll has been removed. Bracket II is made the same as bracket I, except that the shaft in bracket II will only rotate and cannot be forced back into its housing.

The cloth roll is placed in position in the following manner: The square recess of the cloth roll is slipped over the square end of bracket I and the roll is pushed towards bracket I until shaft *S* slides back far enough to allow the operator to line up the hole in the opposite side of the roll with the square end of bracket II. The spring is then allowed to bring the cloth roll into the unrolling position. The empty roll is removed by pushing the roll towards bracket I until the roll clears the square piece of bracket II, then it is removed. —P.C.W., (*Mass.*)

Repairing Winder Spindles

On double-head types of winder spindles the fixed head may break free, resulting in a spindle being thrown away. These damaged spindles can be repaired to give long service as follows: Drill a hole through the spindle at a location that would correspond with the inside face of the broken head, and insert a tight-fitting cotter key. Bend the key ends back around the spindle to form a surface for the bobbin to press against as shown in diagram. The bobbin will be held securely in place when the screw head is moved into its running position against the opposite bobbin head.



Method for repairing winder spindles.

Mills having their own machine shops can pin on a new head, as follows: Place the spindle in a template and drill a hole through the replacement head and the spindle; insert a pin and mushroom it slightly to make a tight fit.—H.E.W. (*Pa.*)

FIXING HOSIERY MACHINES

FULL-FASHIONED MACHINES—Chap. XX—The Reading Center Drive

By WALTER A. SIMOND

THE ADJUSTMENT of the Reading drive —or work around the Coulier motion at the back of the machine—should never be attempted with the power on the machine. Moreover, the electric switches should be padlocked and the key removed from the locks and carried by the fixer to prevent serious accidents.

To maintain uniform motion required to prevent sleazy knitting, the driving chains must be cleaned three or four times a year for each shift operated, then lubricated and kept at the right tension and driving gears, sprockets, or silent chains replaced when badly worn.

Textile Machine Works recommends the following methods for cleaning and lubricating:

"The best method of cleaning the chains is to immerse them in a good grade of petroleum solvent or naphtha and scour them with a scrubbing brush to remove the dirt from the joints. After the cleaning solvent has been completely drained off, place the chains in a bath of hot oil, using a fairly thick lubricant, and leave them there for several hours before replacing them.

"A light or medium oil should be used on silent chains—light for pitches ¾-in. and under, medium for pitches 1-in. and over; and should be applied with a soft brush or by means of an oil cup. Always put the oil on the inside, or working side, of the chain when the drive is running slowly, in order that the lubricant may reach the pin and bushing surfaces.

"Do not use grease as a chain lubricant. Grease will not penetrate the joints of the chains and hence will not lubricate the joints properly, resulting in chain breakage and excessive wear. Chains have been known to wear out after several weeks of service where grease has been used as a lubricant. All chains should be lubricated twice each week; more often if conditions are such that the oil does not remain on the chains for this length of time."

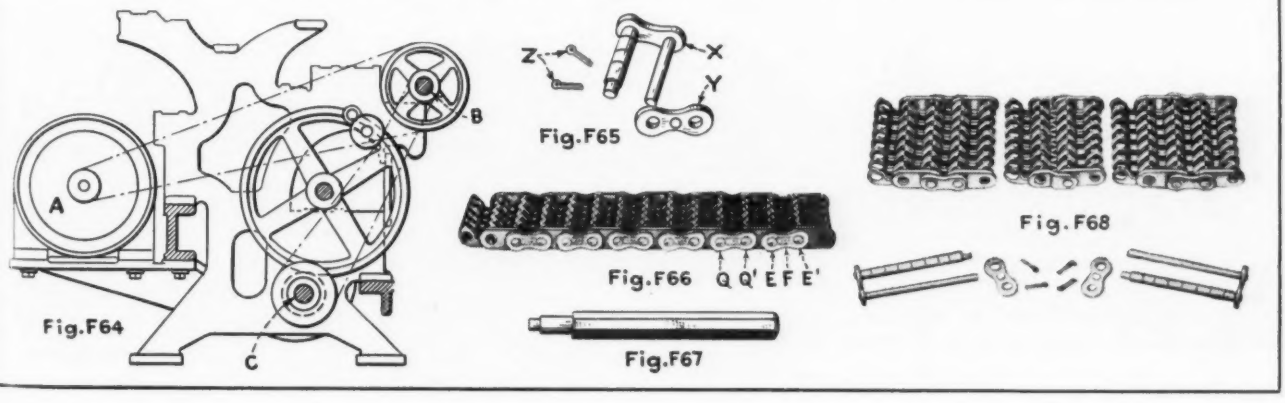
ADJUSTMENT OF THE CHAIN TENSION. As shown in Fig. F64, the chain from motor *A* drives the handwheel shaft *B;* and its tension is adjusted by moving the motor on its base until the lower side of the chain sags approximately ⅜ in. while the upper side is straight, being careful to keep the motor securely fastened to the base for its operation. The tension of the chain which connects shaft *B* to shaft *C* is regulated by the spring tension placed upon the idler puller which contacts the upper side of the silent chain. The tension should be great enough to keep the chain pull steady while the machine is in operation. The amount of tension required must be empirically determined by watching the operation of the machine under a full load.

If it is necessary to remove links from the chain in order to obtain the correct tension, the instructions given by Textile Machine Works, and reprinted, should be followed:

"To disconnect the chain remove the cotter pins and take off outside plate, Fig. F65. Pin-link and bushing assembly can then be pushed out. Pull chain apart. After disconnecting, to shorten two pitches, proceed as follows: Tap the heads of rivets *E* and *E'*, Fig. F66, with a hammer, shearing off riveting. Rivets may then be driven through outside plate *F* with a punch, and pin-link assembly can be removed. It is necessary to remove, one by one, the short bushings which extend through several units of the chain through which the rivet *E* passes. To remove these short bushings, a special punch is provided for each pitch of chain, Fig. F67. To reconnect the chain after shortening use pin-link and bushing assembly, shown in Fig. F65. To shorten the chain one pitch, it is necessary to proceed as previously stated except that four pitches are removed by driving out rivets *Q* and *Q'*, Fig. F66, and take out the bushings through which rivet *Q* passes. In place of these four links couple in a three offset section which is furnished with a connecting link in one end, Fig. F68. To connect the chain, draw the ends together until the links mesh properly and insert the pin-link assembly *X* Fig. F65, put on the outside plate *Y* and secure with cotter pins *Z*."

For the resetting of these gears when necessary, refer to Chapter 1, Instruction 9 in the July, 1940 issue of TEXTILE WORLD.

Textile Machine Works



LOOMFIXERS' MANUAL

WOOL SECTION — Chapter XV (Concluded) — Lay Motions

By EUGENE P. SCHREMP

IF NECESSARY to change the position of the lay end bolts holding the lay end to the lay, they must be loosened slightly. Loosen the setscrews at the front of the lay and remove a shim from between it and the projection *A*, Fig. W35. This will cause the lay end to throw outward after the setscrews in front are tightened. Adding a shim at the same point will cause the lay end to throw inward toward the reed. Removing or adding shims at point *B* will change the position of the front box guide in relation to the race plate. The front box guide should always line with the race plate so that in aligning the reed there will be a slight clearance between the reed and the inside edge of the race plate.

Downward pitch can be controlled by placing a sheet of thin, tightly compressed cardboard between the lay and the lay end. Cardboard such as used on a hydraulic cloth press is quits suitable for this purpose. A strip about 4 in. wide extending across the lay end and placed between the lay and lay end at point *A* will cause the lay end to pitch downward. A strip at point *B* will cause the lay end to throw upward. It is good practice to have one of the bolts extend through the packing so that it will not slip out of place. When replacing a lay end it is not usually necessary to add packing as the lay ends are machined on all bearing surfaces. If more than one sheet of packing is used there is danger of lowering the lay end to such an extent that when the shuttle box is level with the race plate the slide in the box will not line up with the picker slide in the lay end.

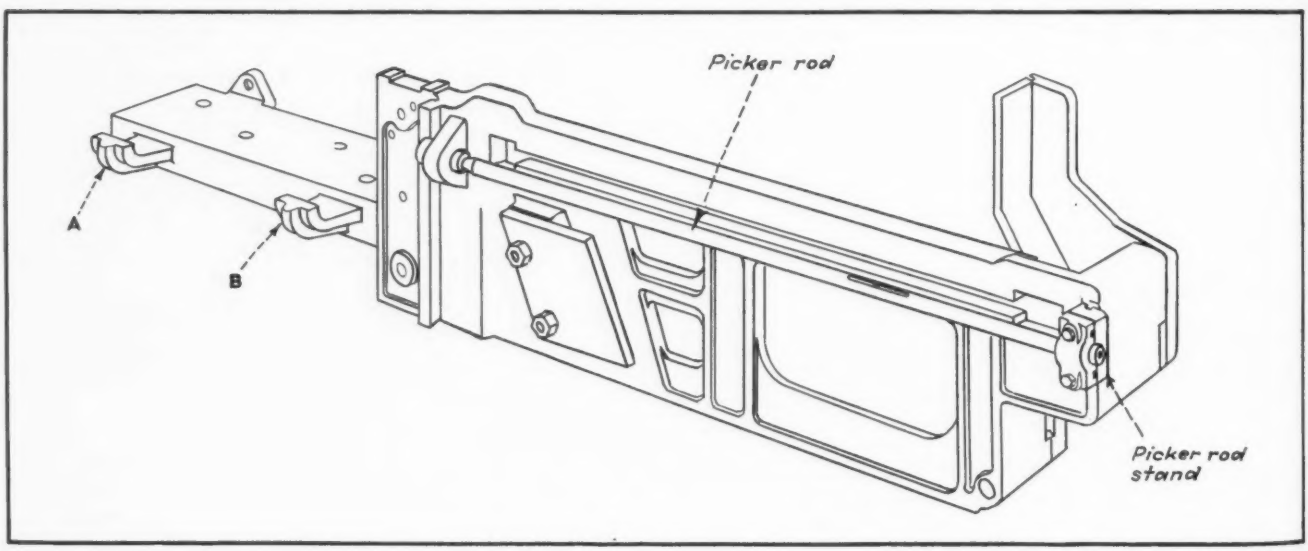
A drop box picker or a reversible picker, as shown in Fig. W33 appearing in the July issue of TEXTILE WORLD is used on the drop box end of the lay, the choice usually depending on the type of loom, speed and the size of the shuttle. Reversible pickers are generally on the W-2 type loom running at high speed and equipped with a small, light shuttle. The use of a picker strap is eliminated with this type of picker and is considered an advantage under such conditions by some loom men.

Straight drop-box pickers usually are used on W-3 type looms weaving heavy woolen or worsteds that require a larger and heavier shuttle. For best results packing should be arranged in the same manner for both types of pickers, see Fig. W34, July issue. Allowing a loom to operate without sufficient packing on the picker rod will cause the picker strap to stretch and necessitate early replacement. The condition of this packing should be inspected frequently. If a loom operates without any packing the picker will be ruined and there is danger of breaking the projection that holds the spindle rod bushing off the lay end.

Chapter XVI
Protector Motion

A PROTECTOR MOTION must be kept in perfect condition otherwise there is danger of serious trouble in extensive loom stoppage. Improperly adjusted or a motion with worn parts may cause a serious warp smash that may even break out ends extending the full length of a shuttle. In case of a mechanical smash the reed may be damaged beyond repair, shuttles broken and temples damaged.

When the loom is running normally, the shuttle enters the box and opens the binder which, in turn, causes the protector finger to lower the dagger in time to clear the knock-off lever as the loom comes toward front center. If the shuttle has insufficient power to clear the warp shed or to enter the box the daggers will contact the knock-off levers and cause the loom to stop or bang-off without damage to the warp ends or equipment.



Crompton & Knowles Loom Works

Fig. W35. Lay end, drop box side of C & K W2 and W3 looms.

QUESTIONS & ANSWERS

Setting Slub Catchers

Technical Editor:

Please give us a method calculating the correct setting of a slub catcher on winders and spoolers to eliminate weak and soft places. At present we set our slub catchers by gueswork and with the variety of yarns that we are required to run, a good many slubs and weak places get by (8935)

On winders and spoolers slub catchers with openings or settings suitable for the count being run will generally stop slugs and gout, but unless the yarn tension suits the counts, uneven or soft places will pass by. Many mills use the same gage and tension for all yarns.

Settings for coarse yarns allow fine ones to go through uncleaned which results in lower production and quality. To avoid this condition, it is necessary to have a setting for each count.

The formula $1.000 \div A$, gives the setting required where A is the number of strands of yarn that can be placed side by side in 1 in. A is determined by the formula $26.1 \times \sqrt{\text{count}} = A$, and is based on the fact that 26.1 strands of No. 1s cotton yarn, side by side, occupy 1 in.

Example of setting calculation for 30s yarn:

$$26.1 \times \sqrt{30} = 143$$
$$1.000 \div 143 = 0.007 \text{ in.}$$

Tension is also different for each yarn and is secured by running the yarn under small weights. Weights should be added until yarn is made to withstand tensions amounting to ¾ total strength.

Rayon Crepe Defect

Technical Editor:

Inclosed are two samples of rayon crepe material we are sending for your examination. You will note what appears to be damaged and pulled out crepe in the filling yarn, which consists of one end of viscose crepe combined with one end of acetate. Please tell us what causes this defect and how to correct it. (8930)

The twist of the combination yarn and the construction of the fabric are satisfactory. You may have some shuttle condition that is resulting in too much tension on the yarn. It will be necessary for you to check the shuttle and quill to determine the exact cause.

We suggest that you be sure that there is no binding of the quills on the sides of shuttles; that spindles are in line with porcelain guides and that yarn is not binding on the fur. Also, be sure that you have a steady, even pull on the filling from start to finish of the quill. If these measures do not correct the defect then look for the cause at the quilling or twisting processes previous to weaving.

Expectant Shuttle Life

Technical Editor:

How long should a shuttle last on X-Model Draper looms and what are the main factors affecting shuttle life? We realize there will be variation from mill to mill, but would like to establish some standard to shoot at in our weave room. (8922)

A good length of life of a shuttle would be 8 to 12 months on 3-shift operation. Mills vary considerably in shuttle life, from one shuttle per week to one a year per loom have been recorded. Very few shuttles actually wear out. Most of the short shuttle life is caused by breakage of shuttles in the loom. Inspecting shuttles every week or so will probably indicate that many shuttles have been abused by the loomfixers and weavers. Shuttles that are badly dented, chipped, cut, or worn can be saved by removing them from the loom and smoothing them off. This can prevent a considerable amount of shuttle breakage. Another important factor is to set the pick motion, harness motion, and feeler and check motion to eliminate wear or prevent damage to a shuttle.

One mill found that redesigning a binder so as to eliminate a curve on the surface contributed to longer shuttle life. The binder is made perfectly straight with no curve or swell and permits the shuttle to be thrown perfectly straight, thus preventing much wear. Shuttle breakage can be reduced by not making the third-end feeler slot any larger than necessary for the proper functioning of the feeler.

Cotton Roving Uneven

Technical Editor:

Will lack of moisture in cotton result in uneven roving? Our roving is very uneven, and our carder insists that the quality of the cotton is satisfactory, but that it is too dry and this dryness causes the unevenness. The cotton we use has been in storage for a long time and of course there is a chance that it has dried out. (8932)

Dry cotton does not process well on cotton-mill machinery from the cards on, but humidifiers should bring the cotton back to normal moisture regain. In mills with improper humidification, it is very likely that cotton that is too dry will cause uneven card sliver; and carried to subsequent processes, the unevenness become worse. Dry cotton is affected by static electricity and static tends to produce unevenness in various operations.

In the last few years ginners have increasingly used dryers in connection with their gins; and although we have no reports of cotton being over-dried, it is something that might happen. If abnormally dry cotton is baled, there is little chance for it to pick up moisture in storage warehouse.

Loom Slamming

Technical Editor:

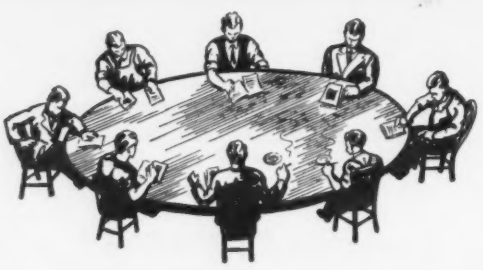
We have been encountering considerable trouble with slamming and have tried numerous methods of remedying it but the problem still exists. Our looms are Draper X2 Model, and operate at 204 picks per min. I have tried various settings and finally concluded that the pick is early. When the picker strap is ready for the stroke the distance from the reed to the breast beam is 10¾ in., which indicates the loom is set too early. Recently I set the lug strap 7½ in. high and the reed at 7½ in. The cams were then turned back so that a distance of 11½ in. existed from the reed to the breast beam. The cam in this position is still early. However, with this setting the loom seems to operate at a smoother pace. I am wondering if this early timing is acceptable and also if it will stop slamming. (8936)

Draper X2 Model looms are high speed looms and require extremely fine adjustments and high class loomfixing to perform well. There are a multiple of causes, other than early picking, which may cause these looms to slam, or bang-off. The speed of the shuttle in these looms is exceedingly high and any interference with a smooth course of the shuttle is likely to deflect it enough to make an imperfect boxing and the loom will slam on the following pick.

One of the most important steps is a perfect alignment of the race board in relation to the lay ends and the reed in relation to the box backs. The box fronts must be so adjusted that there will be a clearance of ⅛-in. between the widest part of the shuttle and the box front opposite the inside capscrew. The outside end of the box front must be so adjusted that it will place the shuttle point in the center of the picker

(*Continued on page* 152)

MILL MEN'S ROUND-TABLE



With meetings of operating executives curtailed because of the war, there is a definite need of a meeting place where mill men can discuss their problems among themselves. The Mill Men's Round Table is designed to supply this need. It is open to all readers for discussion of any and all subjects relating to mill management and operation. Bring your problems to the Round Table. Give other mill men the benefit of your experience, and get their ideas in return. To encourage frank and open expression of ideas and opinions on controversial subjects, names of contributors to the Round Table will not be published, but will be held confidential, if so requested. However, source of contributions must be identified as evidence of good faith and to permit payment for items published. Address contributions to: Editor Mill Men's Round Table, TEXTILE WORLD, *330 West 42nd St., New York. Opinions expressed in this department are those of the writers and do not necessarily reflect the opinions of* TEXTILE WORLD.

Are Women Suited for Doffing?

Can some of the readers of the Round-Table tell me what they think of using women as spinning and twister doffers? I hope some of them have had a better experience than I have had. My observations lead me to believe that on fine numbers and small bobbins their efficiency is fairly good if someone can run the rail down and fasten it for them. On heavy numbers requiring large packages, I find the work too fatiguing for women unless you find a big husky Amazon type not generally found in the South. Of course, I still use women on doffing, but it is costly and inefficient to do so and I believe others have the same experience if they will admit it.

D.U. *(Ga.)*

How to Get More Sliver Per Can

"What is the best way to get more sliver per can?", asks P.A.H. (S.C.) in the June issue.

Frankly, we have not found any good way to increase the amount of sliver in the can very much above the amount the manufacturer of the cards figured for the cans to contain.

Here is our experience: We are running 1-in. staple, 58-grain sliver, with a cylinder speed of 172 r.p.m., carding 18 lb. per hr. Naturally, we wanted to do something to increase the amount of time between doffs, so among other things we tried the spring tension on our calendar rolls, as outlined by your correspondent. Preliminary tests showed up good, so we installed them on all our cards.

Soon we began to have a lot of uneven yarn—"singlings" and "doublings" or, rather, light places and heavy places began showing up in subsequent processes. Finally we traced some of this back to the cards and, to our surprise, heavy places, such as when a new lap was pieced up with too long a piecing, or excessively light places were going through like a top, when ordinarily these places would have broken down. The compressing action of the spring tension allowed these places to pass on along with the "good" sliver. The card hands liked this, of course, for it reduced their work.

We tried reducing the tension, and this helped in proportion to the amount the tension was reduced; but this defeated the very purpose of the tensions, for we, of course, got less sliver in the cans. We tried changing the size of the trumpets and the hole in the coiler, but this did not seem to correct the situation.

As to the sliver being stretched, we did find that while using the spring tensions the sliver ran on the light side and as to the increased power consumption, we believe this was negligible. Doubtless the spring tension will cause wear, but we did not use them long enough for our calender rolls to be worn.

We took the spring tensions off our cards as soon as we were convinced that they were doing us harm. We purposely made piecings as long as 2 ft. and they would go through without any trouble. The same was true with light places. The spring tension may work for some, but it did not work for us, so we are still awaiting an answer to the question. "How can we get more sliver in the cans?"

Long Draft Carding or Spinning?

Attached you will find a statement which attempts to explain our viewpoint and ideas on the question raised in the August issue on long-draft card room and spinning room equipment. This is not my viewpoint alone, but is the result of a discussion between me and our carding and spinning overseer. We sat down and discussed the pros and cons from all angles that we could think of, and hope that we have something that might be of benefit.

Our conclusion is that long-draft on carding and spinning should go together to get the best results. We find that long-draft on fly frames with regular 4-roll drawing, 2-process, doubling 6 to 1 on each process, and regular slubbers going double to long-draft speeders and long-draft spinning is giving good results. It is also making smoother yarn and has increased the breaking strength of yarn. It saves in labor cost, as the intermediate frames are eliminated. We also find that coarse numbers running from drawing through an inter-draft 4-roll fly frame of 9x4½

o long-draft spinning will produce a very satisfactory yarn, eliminating several processes of machines. By so doing, you get the full benefit of your staple, and operators can operate more machines with the larger package.

C.F. (*S.C.*)

How Many Yards to Make a Bunch on a Quill?

There is a wide difference of opinion as to the number of yards necessary to make a bunch on a quill. Some weavers say the amount to go across the warp from 3 to 6 picks; others say 6 to 7 yd.; and still others say the bunch is not necessary except as a filling reserve in case the feeler doesn't register.

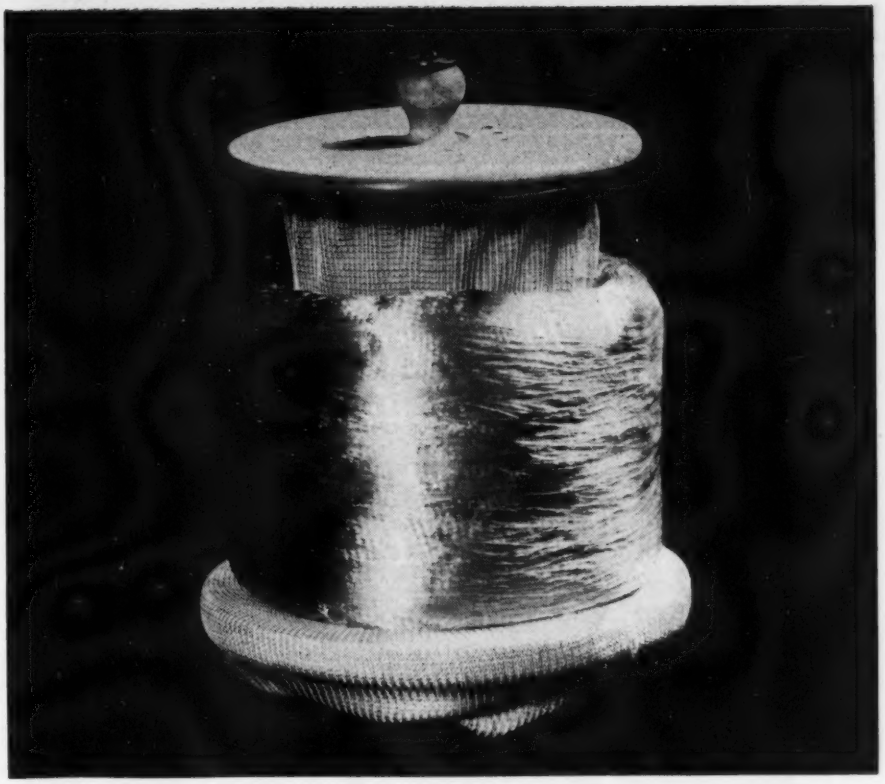
There must be some minimum yardage that should be used on each width of cloth or loom to keep waste to a minimum. However, I haven't found anybody who can tell me how to find the right length of bunch. I hope some mill men will write me in the Round Table and tell me how they find the right yardage for their bunches.

P.E. (*Ga.*)

When to Mercerize

The answer to the question in the July issue under "When to Mercerize," as to whether or not one should mercerize in the gray or boiled state depends largely upon the layout and equipment of the mill. In the case at hand, where the caustic is recovered almost completely, it was not stated whether or not quick lime was added to re-causticize the carbonates formed due to aeration of the wash waters. If this was done, the bulk of the soluble impurities, such as soaps formed from the fatty matter, would have been precipitated by the lime. If not, the writer cannot say if constant gray mercerizing could be done without undue contamination of the bath. In any case, sand filtering would have to be done to remove lint and suspended matter not solubilized by the mercerizing.

The inquirer states that he would be able to eliminate a washing and drying operation, as well as a neutralizing wash, if he mercerizes before kier boiling. We must then assume that he is singeing without desizing when mercerizing gray goods. In this case, there is bound to be a lot of lint, starch, and natural impurities washed off into the recovery tanks to clog the sprays unless they are cleaned two or three times a day. The effect on the mercerizing action, however, is so small as not to be noticeable in the finished piece. What actually happens is that after a certain



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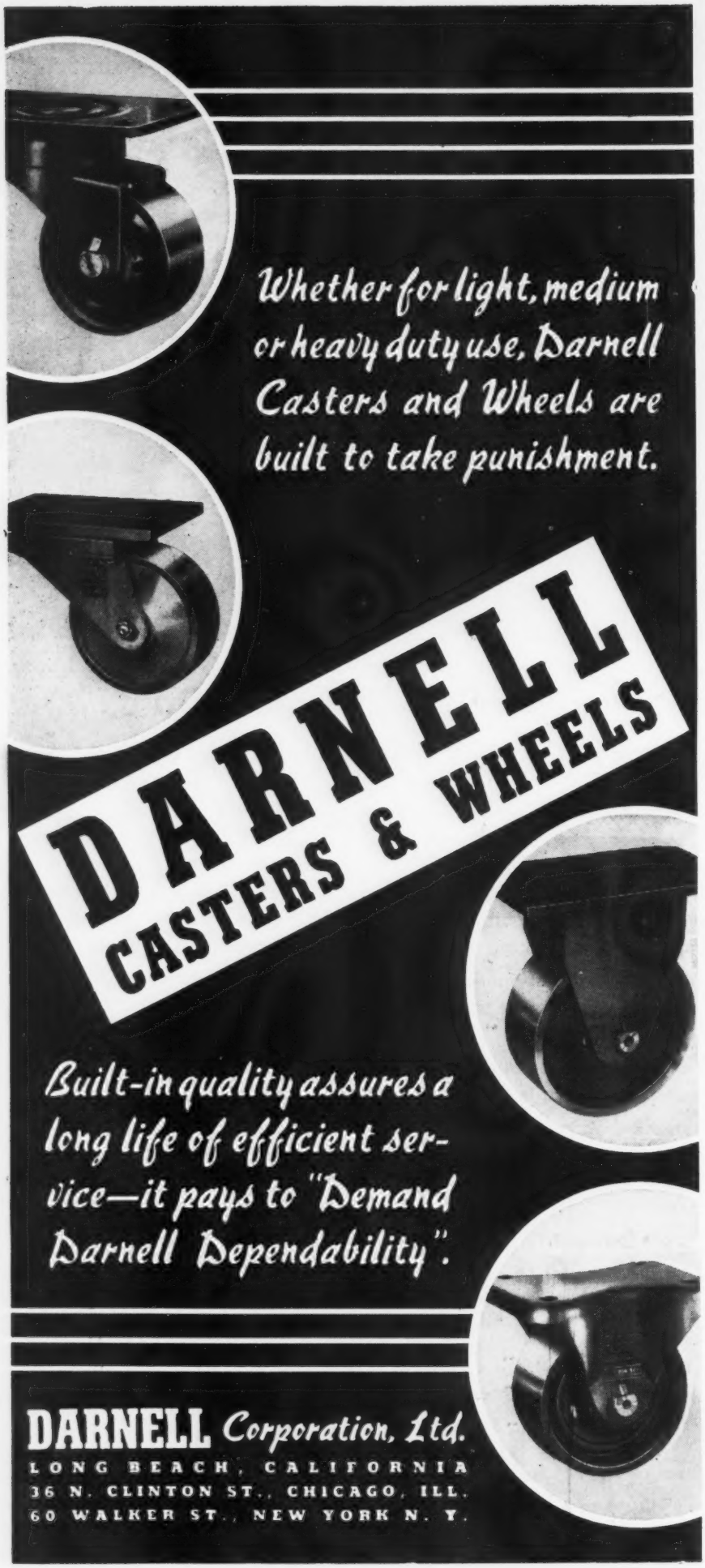
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concentration is reached, the goods take out about as much as they put into the pad box. If gray mercerizing is desirable from the standpoint of eliminating a washing and drying, such contamination must be expected. If filtered, these wash waters are perfectly suitable for kier-boiling, thus there is no waste.

Another method that has been practiced successfully is to singe, desize, put through a heavy mangle and mercerize in the damp state. It is not practical to eliminate the mangling, as the dampness must be even or uneven mercerizing will result. It is usually wise to pass the goods through a couple of log washers prior to the mangling, as this removes over half the readily soluble and foreign matter trapped in the cotton. Where the layout permits, this method is probably the cheapest consistent with good results. The resulting wash waters are fairly clean. The writer has no experience with recovery of such liquors for mercerizing.

The gray mercerizing, referred to in the April, 1943, issue, was done after singeing, desizing, washing, and drying, and was usually confined to styles which, for one reason or another were best mercerized gray. There was no saving in this routing, except that in cases where bad designs had left tight edges there was less loss due to cracked salvages. Contamination of the liquor was of no consequence, since filtering made it suitable for kier-boiling.

The trend for the past few years has been toward mercerizing boiled goods, but the most recent scientific work seems to indicate that desized cotton gives the best lustre. It is doubtful if this could be detected by the naked eye on average American cotton. The better grades of fiber, long staple cotton, in plied yarns might show it. It would be interesting to try this out.

A.C.T. (*Md.*)

Sizing Nylon Fabrics

In the article "Hints on Weaving Nylon Fabrics" in the June issue of TEXTILE WORLD, the impression is given that Nylon warp yarns are sized only on single-end machines. Actually, warp sizing is done to a considerable extent on a standard rayon warp sizing machine *after single-end sizing*. In fact, many mills feel that is the only way to get a good, even warp and avoid tight and loose ends.

At least one chemical company has developed a warp size specially for this purpose. Many mills will not attempt to weave Nylon which has been single-end sized unless it is also warp sized. Warp sizing of *raw* Nylon, however, has not proved very satisfactory to date.

S. M. Ferrer (*N.Y.*)

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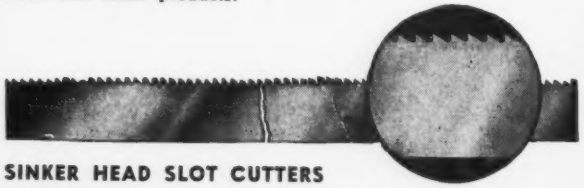

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Recent WPB Enactments

The Knitted Underwear Advisory Committee has reported to WPB that the yarn allocation program has been outstandingly successful in increasing output of knit underwear needed for civilian use this fall and winter. The committee recommended that the present program be extended to include all types of underwear instead of simply the heavy types. It noted difficulty in procuring adequate seaming, facing, and lining fabrics. The committee raised the question as to whether or not the industry might be classified as essential by the War Manpower Commission....

Two varieties of spinnable istle fiber —juamave and pita—can be blended with sisal in manufacture of rope, thereby increasing the supply of cordage fibers, as a result of amendment to Order M-138, effective Aug. 12. . . .

English-spun cotton allotted to the lace and netting industry for military production may be released for other specified uses through appeals taken under Order M-272 (Imported Cotton Yarns and Fabrics), officials of the Textile Division of WPB indicated....

The recent cancellation of priority ratings for purchase of rayon and part-rayon linings for officers' uniforms applies to all types of linings, including those for coats, sleeves, yokes in shirts, hats and any other type of lining in the uniform, according to WPB. . . . .

All manufacturers of cotton tire-cord have conferred with WPB officials to try to develop additional production of tire cord and to take steps to assure maximum production next year. The present production of cotton tire cord is on the basis of 240,000,000 lb. per year whereas present requirements are on a basis of 270,000,000 lb., a deficit of 30,000,000 lb. per year, according to Thomas M. Bancroft, Chief of the Cotton Branch, Textile Division of WPB. He further stated that in all probability requirements will increase next year. Frank L. Walton, Director of the Textile Division of WPB, made it plain that this program is in addition to the rayon cord programs now authorized and totalling 160,000,000 lb. a year, including the 68,000,000 lb. conversion recently approved. As for the proposed third conversion of 40,000,000 lb. of rayon cord, Mr. Walton said it had not been acted upon by WPB because it will probably require the construction of new plants. . . . .

Non-functional trim and frills of knit outerwear, including sweaters, bathing suits, headwear, mufflers and gloves, were banned by WPB's order L-310 (knitted outerwear), which at the same time placed certain restrictions on the styles and colors.

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They keep books, making printed records of incoming and outgoing shipments. They "read" themselves and *print* the weight record on a ticket or tape. They control batching. They measure paint ingredients. They guard secret formulas. They count small parts. They save time and money by preventing human errors. They can be fitted into your production flow to eliminate duplication of effort and accelerate output. If we can't show you how—that's our loss—not yours. Fairbanks, Morse & Co., 600 S. Michigan Avenue, Chicago, Illinois.

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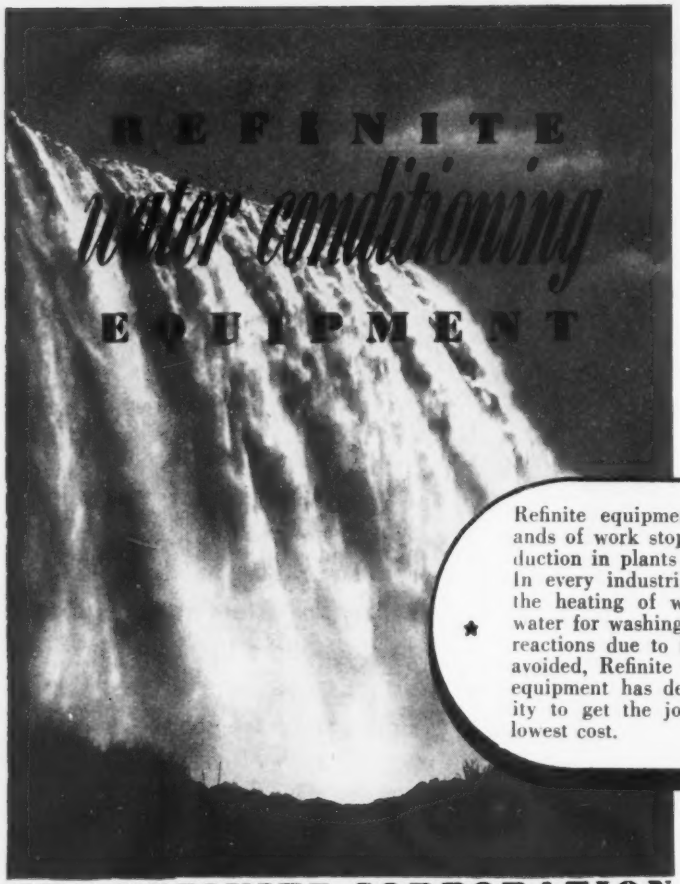

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Control of Neps and Naps

(*Continued from page* 85)

bunches of fibers which, when small enough, become embedded in the sliver. roving and yarn and often have the appearance of neps. Any type of clearer, if not picked often enough. will cause a similar condition by small bunches of clearer waste being plucked by the passing strand and become pressed into the body of the sliver. roving or yarn. Lower clearers on draw frames and slubbers will cause this defect and as the collection of waste is not visible, it is often neglected until it builds up between the steel rolls and small tufts are nipped off. Certain types of top rolls eyebrow so badly that a curtain of fibers extend down until it comes in contact with the strand. Slivers and roving sagging on roller beams or back plates will drag in accumulated foreign matter.

There are many impurities visible in the finished product for which either the cotton or the carder is blamed, but which may be traced to other causes. A small tight pin cockle is often mistaken for neps. The use of air in cleaning creels or under- parts of spinning frames will blow-in much foreign matter.

Chafed yarn may be made on spooler or loom and this often has the appearance of a cotton impurity. Lint which accumulates on the open sheets of warp yarn behind the slashers goes through the size box and becomes attached to the yarn. A large part of this is either removed by sticking to the cylinder or is scraped off by the loom drop wires or harnesses.

These surface impurities are removed largely by brushing, shearing or singeing of the finished cloth and while the bleaching process may remove the coloring matter and calendering, it may flatten them to make them less visible on the surface, but they are easily discernible by holding the cloth up to the light. The small particles of pin trash and tightly knotted neps are firmly imbedded in the body of the yarn.

Many of the nep counts shown in the Government bulletin show a large increase of neps in the card sliver over the number shown in the picker lap. A series of actual mill tests show an average efficiency of 77% in nep removal of the card. This means that for every one hundred neps present in the picker lap, the card was able to remove 77 of them. This should not be considered as an exceptional performance. Any well equipped and controlled card room should be able to equal this result. The addition of the combing process should enable this record to be greatly exceeded.

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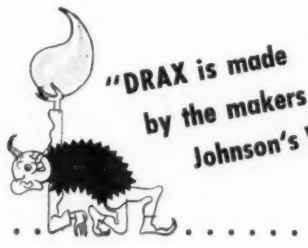

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QUESTIONS AND ANSWERS

(*Continued from page* 143)

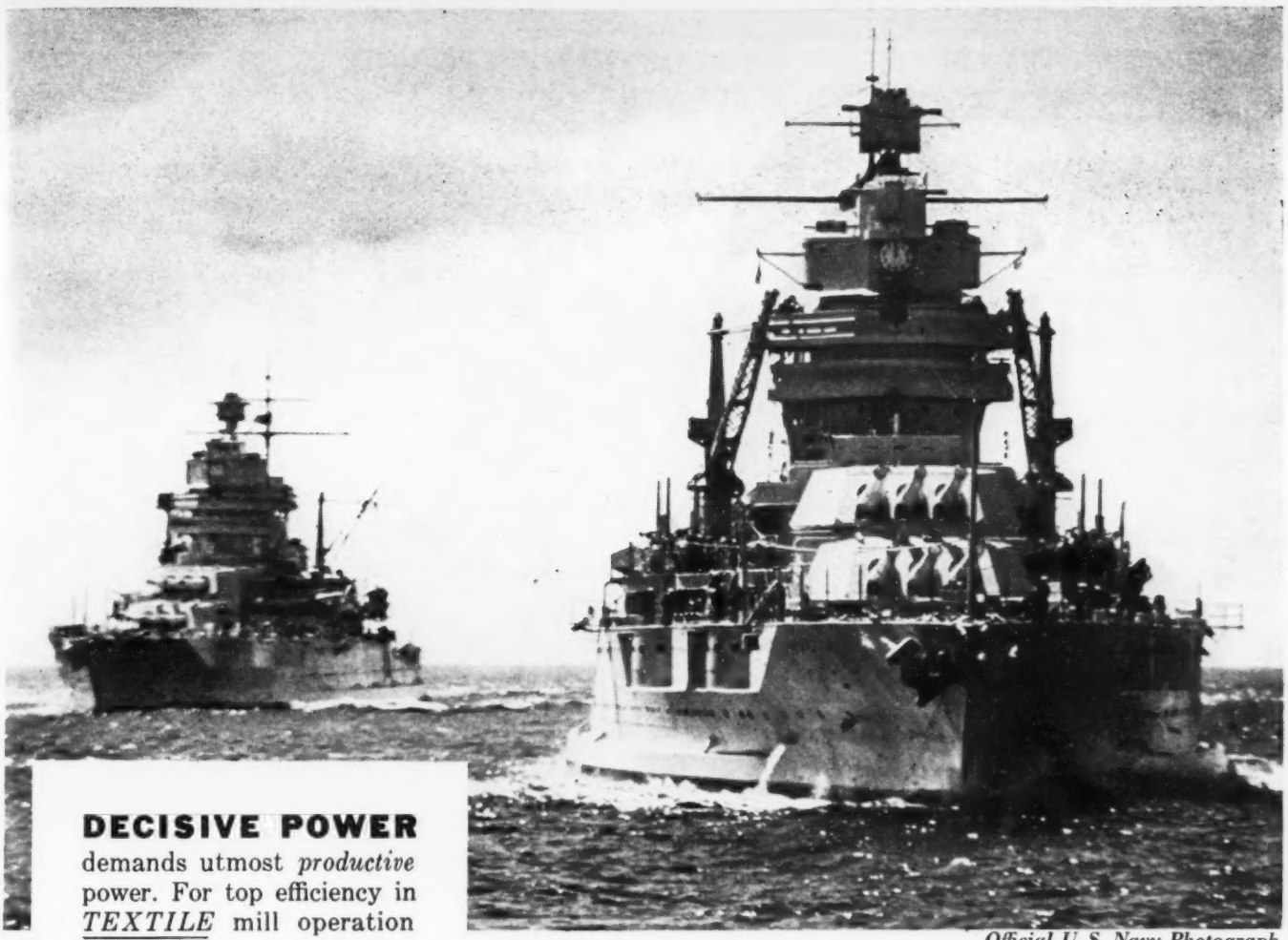
stick with picker removed. Do not alter this position but turn the binder bushing to give proper clearance of the daggers above the frog steels.

The proper setting of the check straps is paramount to good running of the looms. The high speed of these looms has a tendency to create a frictional heating of the straps and it is often necessary to readjust the frictional resistance of these straps after the looms have been running.

The harnesses must be adjusted for a clear open shed with the lower part well down to the race board. The timing of the harnesses is not very important as long as they are not timed so late that the shed is not fully opened at the time the shuttle enters, nor so early that the shed will close over the shuttle while it is still in the shed.

In reference to the setting and timing of the pick, it is rather difficult to prescribe the proper steps since the inquirer does not state the width of the loom. However, since it is stated that the speed of the loom is 204 r.p.m. this would indicate that the looms are 36-40 in. wide. With this assumption, adjust the medium length pick arm so that there will be $3\frac{7}{8}$ in. between under side of pick arm dog to the top of the lug strap stud. Set lug strap so that there will be $7\frac{1}{2}$ in. between the under side of the lug strap to the upper edge of the picker stick cap. Next, adjust the length of the lug strap so there will be not more than a $\frac{1}{4}$-in. play between the lug strap and the picker stick when the pick ball is at the lowest point of the cam and the picker stick fully in its normal back position. Theoretically, there should be no play at all between the lug strap and the picker stick in the position just stated, but this close setting may cause the shuttle to be pulled slightly out of the box as the loom moves over the front center. This action will cause an imperfect picking position of the shuttle on the pick following and may also cause a prematured bobbin transfer. The setting should place the picker stick connection pitching slightly toward the pick arm stud.

With these settings completed, turn the loom until the reed will be $2\frac{1}{8}$ in. from the fell of the cloth and with the shuttle fully up in the box turn the adjusting screw in the pick cam until the picker stick is just ready to move the shuttle for the pick. Tighten the pick cam in this position. Turn loom until pick ball rests on the point of the pick cam and adjust the pick shaft stop so that there will be no more than $\frac{1}{16}$ in. play between it and the bumper. Check the parallel motion to see that the picker moves parallel to the lay end



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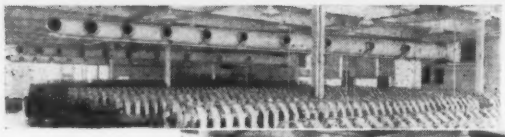

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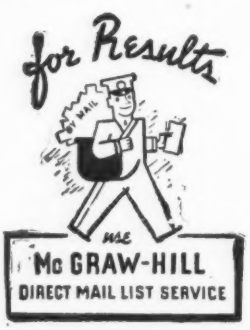

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with a barely perceptible rising at the end of the stroke. Adjust the height of the picker to center over the point of the shuttle when the latter is down on the box plate and fully in the box. Test this setting by starting the loom. If the pick is too powerful raise the lug strap on the picker stick and/or raise the pick arm. If the pick is too weak drop the lug strap on the picker stick and/or drop the pick arm. After the completion of these adjustments the pitching of the picker stick connection toward the pick arm stud must remain as before. Any power adjustment must be followed by an adjustment in the length of the lug strap. Not more than ¼-in. play between the lug strap and the picker stick must be maintained at all positions if the timing of the pick is to be preserved.

Knitting O.D. Mufflers

Technical Editor:

Kindly advise size of worsted yarn and machine for knitting the Army muffler. We note that you have listed specifications for mufflers in your revised Textile War Manual, February, 1943, and thought that you could supply us with additional information. (8934)

U. S. Army Specification No. 8-99A is applicable to these mufflers. They should be knitted from 2 ends of a 2-ply yarn on a flat knitting machine, with a 1 x 1 rib stitch and have a well formed selvage edge on each side. Minimum requirements are as follows: width 12 in., length 64 in., wales 6 per in., courses 11 per in. Weight of muffler, 8.5 oz.

The gage of the flat knitting machine should be approximately 8, and the yarn should be 2/24 worsted. Two ends of 2/24 worsted are used in producing the muffler. After knitting, the muffler is brushed on both sides to produce a napped surface.

To bid on these mufflers you should first secure complete specifications from the Philadelphia Quartermaster Depot, 21st & Johnston Sts., Philadelphia.

Defective Acetate-Viscose Blend Yarn

Technical Editor:

Can you tell us what is causing the white nubby specks in the spun rayon fabric sample enclosed? The yarn used in this cloth is a blend of 80%, 1½-den. bright viscose and 20%, 3-den. dull acetate. Evidently the white spots are acetate and we are anxious to know what has caused them. Is it caused from improper blending or carding or is it due to waste in the spinning? Any suggestion you can give us will be very much appreciated. (8921)

During the spinning process the coarser acetate staple tends to come to the surface of the yarn and any rough

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Write for Bulletin

BY THE MAKERS OF
ARMSTRONG STEAM TRAPS

or sharp edges tend to slip these fibers into little knots that look like neps. These are picked up, carried along and finally bound into the yarn. Close inspection will reveal that these knots are lightly bound on the surface of the yarn.

To remedy this defect, check all points of yarn contact, such as rollers, trumpets, guides, travelers, and tension devices, for rough places. Clean frames more often and thoroughly. Pick roll cleaners often, and do not allow lint to accumulate at any point. The defect cannot be remedied in finishing unless the fabric is napped, in which case the napper wires comb up the fibers to give a slight raised or wooly appearance to the cloth that hides the knotted fibers.

Rough Knitting Needles

Technical Editor:

We have several thousand knitting needles like the inclosed samples that we would like to use again, but find it impossible because of the holes and streaks they leave in the hosiery. The roughness is due to the silk gum that has stuck to the needles. Is there some way of cleaning these needles so they can be used again? (8913)

One of your needles should be discarded and two of them can be refinished. Examination of these needles under a microscope show stem marks, bad reducing burrs, and beard half gone. In view of the above, we recommend picking out the badly worn needles and having the rest refinished, which would take off the gum. Caustic soda will destroy the gum, but every trace of caustic must be removed from the eye.

Blending Wool Stock

Technical Editor:

We are producing a 30-oz. fabric using a mix of 44s and 58s quality wools that have been raw stock dyed. The finished cloth has shaded places as if the stock was not well mixed. Will you please give us suggestions concerning the blending of our stock so as to eliminate rowey and shaded places. (8919)

Improper preparation of the raw stock before dyeing and the blending of the mix in the picker room are causes of shaded goods. Mistakes made in blending and picking cannot be corrected in subsequent processes.

The aim in blending colored wools is to create a mix in which even wools of radically different physical structure are not distinguishable in the yarn. Raw wool must be well scoured. Partly scoured wool will dye unevenly and unless properly blended will cause specky or shaded cloth. After scouring, wool should be dryed at not over 160° F. Overheating can make fibers harsh and brittle and difficult to handle at subsequent processes and cause unevenness and waste. All vegetable matter should be removed from the wool by dusting as soon as possible after drying. Excessively burry wools must be carbonized, otherwise some burrs will drop out in the mixing, blending, and carding processes while others will get through to the roving processes and cause uneven yarn.

After being scoured, dried and dyed, the stock is ready for mixing—the following processes being required: weighing of the lot, laying of the blends, picking, oiling and blowing. These operations are important and should be carefully done to obtain the best results.

Place the weighing process in the hands of a reliable, experienced weigher as a variation of a few pounds in the weight of a lot can cause off-shade. In laying out the blend be sure that the person on this job makes layers of even thickness and each layer is of the right stock. Also, that each of the various kinds of stock is properly distributed in the pile. Thin layers are better than layers that are too thick, since the resulting blend is more even. In blends where a comparatively large quantity of one type of wool is to be mixed with several small quantities of dyed or undyed stock a temporary mix is best. In a temporary mix split the large stock and blend part of it with the small lots, then add the balance of the large lot or lots and blend entire stocks. It is also important in feeding a mix to the picker that the floor mix be cut from top to floor, vertically, to obtain like portions of all layers.

Cause of Folds in Picker Laps

Technical Editor:

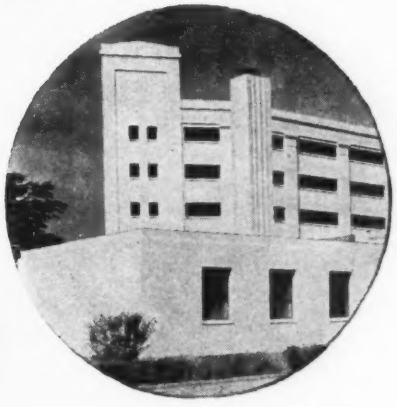
For several weeks now I have had laps come from the pickers with "wind rolls and folds." We use a conventional Saco-Lowell single-process picker with three beater sections and a blending reserve. How can I prevent this condition? (8906)

Wind rolls or folds can be caused by lap pins binding or crooked pins, dry rollers in the pressure head, and improper drafts and fan speeds. Remedies suggested are these: use whiting on binding lap pins; straighten all crooked pins and remove dents or nicks and polish; keep proper humidity in picker room to prevent dry rolls; check leather seals; fan speed and condition of fans to get draft correct. Also be sure picker calender rolls are clean and flutes are free of trash. Check picker for points needing cleaning or lubrication.

announcing

after 10 years' research . . . a scientific contribution to

masonry protection



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NEWS OF THE MONTH

Institute of Textile Technology

The Institute of Textile Technology, a new research organization in the cotton textile industry, was formerly launched at a meeting held in New York last month. Represented in the organization are 29 cotton mills comprising approximately 3,000,000 spindles. Ward Delaney, for several years on the staff of the Institute of Paper Chemistry, at Appleton, Wis., has been named executive director of the new Institute. The meeting was presided over by Fuller Callaway, Jr., president of the Callaway Mills, La Grange, Ga., who initiated the movement.

The Institute will engage in fundamental and applied research in the field of cotton textiles, and, in addition, will carry on a program of graduate training.

Temporary headquarters will be the Barclay Hotel, New York, pending determination of the site for the permanent location of the Institute. Other cotton manufacturers will be invited to join the group.

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Move to Improve Quality of Cotton Crop

A program aimed to improve quality of the current cotton crop was initiated at a meeting of representatives of all sections of the cotton industry from growers to spinners and weavers, held at Memphis, Aug. 16, under the auspices of the National Cotton Council. The meeting was called at the suggestion of Marvin Jones, War Food Administrator, who recently warned the industry of the disastrous consequences likely to attend production of another crop of too high a percentage of the lower grades.

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N. C. Hosiery Mills Without Army Orders No Longer "Essential"

"Hosiery manufacturing will be considered an essential industry in North Carolina only to that part of the industry holding contracts to produce materials for the armed forces," J. S. Dorton, State Director of the War Manpower Commission, stated last month. This classification also applies to other States, but was under appeal at this writing.

"Workers employed in hosiery manufacturing plants not holding contracts with the Federal government," Dorton said, "will not be considered engaged in essential activities after Aug. 1."

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Six Months U. S. Rayon Production Totals 323,800,000 lb.

Production of rayon yarn and staple fiber by American mills during the first half of 1943 amounted to 323,800,000 lb. states the *Rayon Organon*, published by the Textile Economics Bureau, Inc. This total, the largest in the history of the rayon industry, compares with production of 321,500,000 lb. reported for the second half of 1942.

Rayon filament yarn production during the six months ended June, accounted for 245,100,000 lb. of the total output. This compares favorably with the output of 234,800,000 lb. for the same period in 1942 and the 218,200,000 lb. produced in the first half of 1941. Staple fiber production accounted for the balance of the total.

MARSHALL FIELD & CO., Spray, N. C., received the Army-Navy "E" last month. At the ceremonies were: (left to right) Lieut. Col. H. C. Kliber, executive officer, Procurement Division, Philadelphia Quartermaster Depot, who made presentation; Lieut. A. K. Davis, Jr., United States Navy, who presented "E" lapel pins to employes; Luther H. Hodges, vice-president and general manager in charge of manufacturing operations for Marshall Field, who accepted the "E" pennant.

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Additional "E" Award Winners

Among companies awarded Army-Navy "E" pennant since last report are the following: Marshall Field & Co., woolen mill, Spray, N. C.; Cyril Johnson Woolen Co., Stafford Springs, Conn.; Phoenix Trimming Co., Chicago, Ill.; Taylor (Texas) Bedding Mfg. Co.; Simmons Co., Elizabeth, N. J.; Union Bleachery, Greenville, S. C.; Avondale Mills, Sylacauga, Ala.; Hathaway Mfg. Co., New Bedford, Mass.; Burlington Mills, Greensboro, N. C.

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New Futures Contract on New York Cotton Exchange

The New York Cotton Exchange offered a new futures contract beginning with August 1943 deliveries. Essentially this new contract will conform more closely to the packaging usages current in distributing cotton from producers to domestic mills, eliminating some of the features of packaging formerly used. The new contract prohibits the delivery of high density cotton.

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Changes in Priority Policies by WPB

The priority pattern, which channels distribution of a large part of the total annual production of woven cotton textiles into industrial and agricultural uses, has been simplified by WPB's order M-317, effective Aug. 17. The order gives preference ratings of AA-3 for procurement of woven cotton-textiles for many essential products used in manufacture of industrial and agricultural products, instead of the A-2 rating which prevailed in many cases.

Machinery for allocation of cotton textiles is set up in the event that such action has to be resorted to in fulfill-

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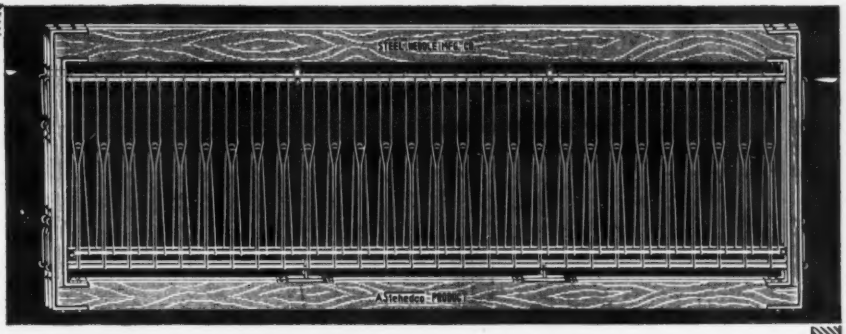

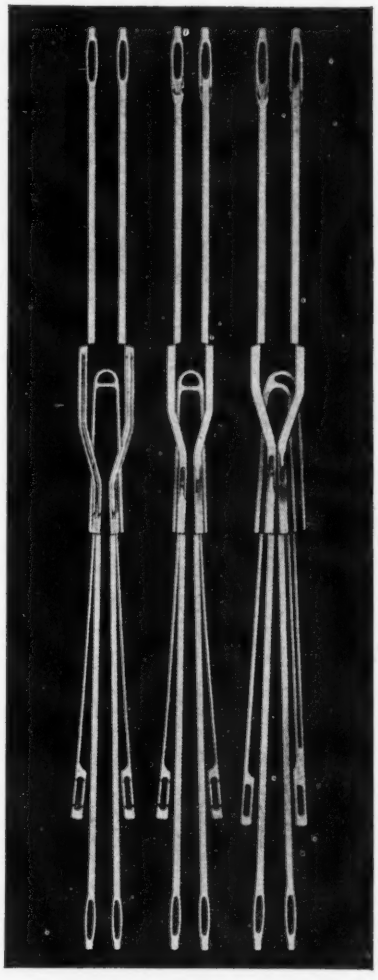

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There is a leno heddle for almost every fibre from the finest rayon thread to the coarsest cotton.

It is most essential that our especially constructed harness frame be used in connection with this heddle to allow correct functioning of the equipment. You will greatly benefit by ordering complete sets of harness which include the necessary hardware and the mounting of the heddles correctly.

Please give complete information, as to the type fabric you intend to make, either direct to Philadelphia or to our field engineer.

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Southern Plants
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Canadian Plant
6259 Notre Dame Street E., Montreal, Canada

Branch Offices
Guilford Building, Greensboro, N. C. 44 Franklin St., Providence, R. I.

ment of either military or essential civilian requirements.

The order also establishes certain provisions regarding inventories and deliveries of all cotton-textiles, specifying that stocks in the hands of processors, converters and merchants are to be limited to a practical minimum working inventory, which in no case can exceed requirements for 60 days (exclusive of material in transit or in process of conversion).

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Georgia Textile Education Fund

The Textile Education Foundation, Inc., has been established by members of the Cotton Manufacturers Association of Georgia for the purpose of raising a $500,000 fund to aid and promote all types of textile education and research in Georgia and adjoining States. The money will be used primarily to get top-notch teachers and to furnish and maintain the latest type of equipment at the A. French Textile School of Georgia School of Technology and at the Textile School at Alabama Polytechnic Institute. The University of Georgia also will receive benefits for its school in textile designing.

W. Harrison Hightower, president of Thomaston Cotton Mills, is chairman of the fund and the incorporators include many prominent manufacturers in the State.

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Industrial Rayon to Double Painesville Output

Expansion of Industrial Rayon Corp's. continuous process plant at Painesville, Ohio, by the addition of 22,000,000 lb. of capacity for high-tenacity tire-yarn production will be started at once under WPB allocations, giving the company top priorities for materials and equipment to increase the plant's output by more than 100%, Hiram S. Rivitz, president, announced recently. Program will be financed entirely by the company, whose directors in June authorized appropriations for this purpose, and it will give the company a total yarn capacity of over 60,000,000 lb. per year, more than 50,000,000 of which will utilize the continuous process. This process is operating not only at Painesville, but at the company's Cleveland plant, which has a capacity of over 10,000,000 lb. and has recently been converted to the manufacture of high-tenacity tire-yarn, called Tyron. These plants will be equipped with machinery, not only for the production of tire yarn, but also for making the finished tire cord and fabric.

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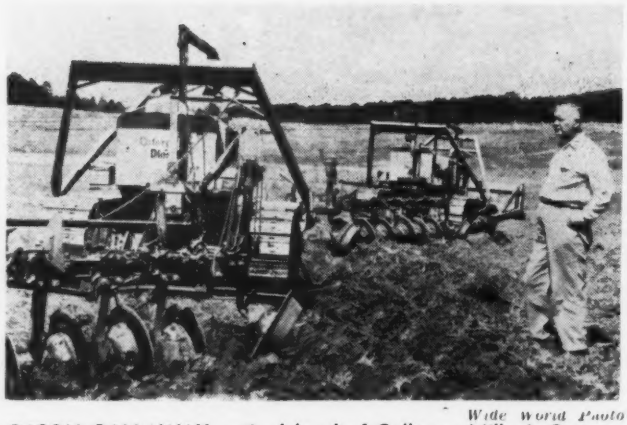
Dept. of Agriculture Offering Textile Courses for Federal Employees

Textile courses are being offered to Government procurement officers, specification writers, laboratory workers, and other qualified Federal employees in and about Washington by the Graduate School of the Department of Agriculture. Classes in textile technology for the school year commence Sept. 27.

Two courses of instruction are offered, one known as, "Introduction to Textile Technology; "the other, "Textile Design and Fabric Development." Information about these courses may be obtained by writing to Director of the Graduate School, Room 1031 South Agriculture Building. Washington (25), D. C.



Wide World Photo

CASON CALLAWAY, retired head of Callaway Mills, LaGrange, Ga., watching a battery of Caterpillar tractors with disk plows turning the soil on his 25,000-acre Blue Springs Farm, near Hamilton, Ga.

Vinson Addresses Combed Yarn Group

Judge Fred M. Vinson, director of the Office of Economic Stabilization in Washington, was scheduled to be the principal speaker at the annual meeting of the Southern Combed Yarn Spinners Association at Charlotte, N. C., Sept. 17. In addition to this address, a forum was scheduled for discussion of matters of importance to the textile industry.

▼ ▼ ▼

Kendall Meets War's Challenge

The way in which The Kendall Co. has met the challenge of war is told in an excellent brochure prepared by the company under the simple title "Kendall." It points out that an industrial enterprise which can demonstrate its flexibility by absorbing sudden abnormal growth, such as that in wartime, without diminishing its efficiency or impairing the quality of its output, gives undisputed evidence of having been prepared by scientific planning to meet any challenge or any test, and justifies the ideal upon which the industry has been built. It adds that the chronicle told in the pages of the booklet is that of an American enterprise founded on such an ideal 40 years ago, The Kendall Co.

It describes the integration of the various divisions of the company including the cotton mills, located in three states, the finishing plants, located in eastern New England, and the surgical dressings division, known as the Bauer & Black Division. These are the operating sections of the business; the executive branch of the company directs and coordinates the decentralized business activities of the divisions.

The booklet contains interesting photographs of processes in these divisions, and of some of the plants themselves.

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ACMA Opposes Renegotiation of Standard Goods

Board of directors of ACMA meeting in Charlotte, N. C., last month went on record as opposing the renegotiation of Government contracts covering standard goods on which costs are well known. The policy of the association was stated as follows:

"Contracts for products or goods manufactured from raw materials commonly used by the contractor and manufactured into classes or types of goods commonly manufac-

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Damp-Tex is unaffected by live steam common to many plants.

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Pre-Treated Damp-Tex will resist fungus, mold or mildew on the surface to be painted.

MOISTURE TEST

Water soaked bricks painted with Damp-Tex and dried in the sun prove the film will not blister or break.

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Two to three percent caustic washing salutions are not injurious to Damp-Tex Enamel.

DAMP-TEX

THE WET SURFACE ENAMEL

ACID TEST

Damp-Tex is unaffected by lactic and other common food acids.

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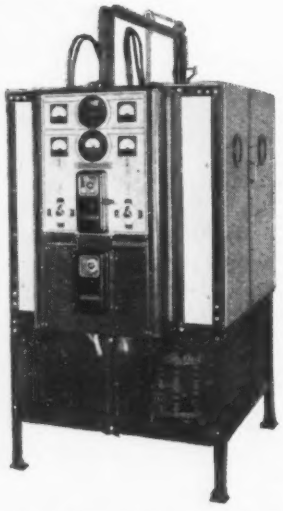
TEXTILES HAVE BECOME WEATHER CONSCIOUS

Mill operators know what the ATLAS FADE-OMETER and LAUNDER-OMETER did for the industry in predetermining the fastness to light and washing textiles.

ATLAS WEATHER-OMETER

for years the standby of the paint and roofing industry, now has been redesigned to accommodate large size textile specimens in order to meet the new federal specifications demanding accelerated tests.



ATLAS TWIN-ARC WEATHER-OMETER

ATLAS ELECTRIC DEVICES CO.
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ATLAS-OMETERS
WEATHER-OMETER
LAUNDER-OMETER ★ FADE-OMETER

AMERICAN VISCOSE CORP., Marcus Hook, Pa., has received the Army-Navy "E" Award. Shown at the ceremonies above are (left to right) Col. D. N. Hauseman, Chief of Philadelphia Ordnance District; Lt. Com. B. P. Edmunds, Office of Inspector of Naval Material, 4th Naval District; E. E. Lilley, employee representative; William C. Appleton, company president.

tured by the contractor, and upon types and classes of machinery and equipment commonly used by the contractor for such purposes, and manufactured by the processes generally and commonly used by such contractor for such purposes, should not be subject to renegotiation.

"The costs of such products or goods are not an unknown quantity and can be and are readily forecast with reasonable accuracy by the manufacturer."

▼ ▼ ▼

Ribbon Group, in Court, Dissolves

Ribbon Manufacturers of America, Inc., New York, the industry's association whose members covered 75% of the ribbon business voted to dissolve last month following action brought by the Dept. of Justice against the association and its members charging violation of the Sherman Anti-Trust Law. Fines were levied on 14 corporations and one individual totaling $41,000 by Judge Leibell in the U. S. District Court.

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Textile Chemists to Hold Inter-Sectional Contest

The annual inter-sectional contest of the American Association of Textile Chemists & Colorists will be held in New York, on Friday, Oct. 22, in conjunction with the regular meeting of the New York Section. In advance of the meeting, each section will submit copies of its paper to the judges for preview. Papers will be judged according to their practical value, scientific value, originality, and presentation. Several of the papers presented at last year's contest were helpful to the association's research committee and to the war effort of the entire textile industry. It is anticipated that the contest this year likewise will result in worthwhile contributions.

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High-Impact Rayon Used in Cargo Chutes

High-impact acetate rayon developed by Tennessee-Eastman Corp. is specified in a new type of fabric for cargo parachutes recently adopted by the Army Air Corps. Details regarding the properties of the new yarn have not yet been made available; however, it is believed that high elongation and high-impact strength are the outstanding character-

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and *"SCOTT TESTERS" help make good textiles!

Upwards of 200 textile products are in action with our fighting men. To speed the production and double-check the quality, physical testing has become more than ever before an established element of the manufacturing process. *Scott Testers have the dependability and the stamina to meet today's high quality, high production demands. Our utmost cooperation is extended to all war plants with testing problems.

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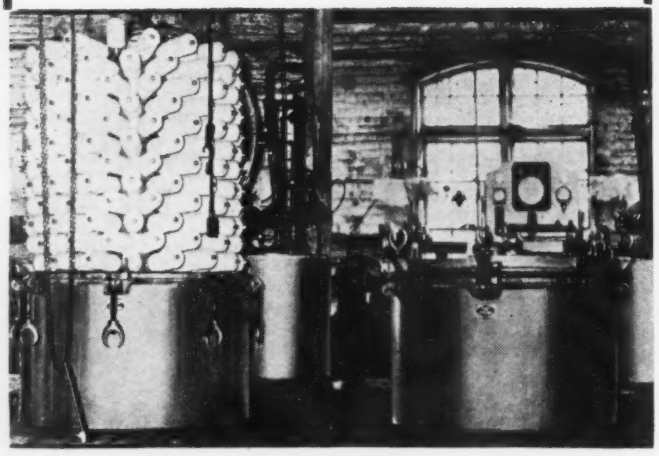

Model KRAG 407 Twin Package Spindles, Machine with Carrier.

The spindles on the model KRAG are placed horizontally on carrier, which makes for easy loading and unloading.

Two packages are loaded on one spindle, so that any desired flow of dye liquor can be obtained by the use of larger capacity pumps.

This model is ideal for the dyeing of tubes of cones as the outer circumference of the loaded cones increases in direct proportion to the larger bottom diameter of the tapered form of the cones.

The special feature of this machine is the built-in indirect heating cylinder which makes for even temperatures throughout the entire bath and consequent level dyeings of any shades sensitive to heat.

At the same time, it reduces the liquor ratio to a minimum thereby producing most economical dyeings, especially with vat colours.

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Cotton & Wool Dyeing Machines

for

Beams • Packages • Rawstock • Skeins

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All Subject to Required Priorities

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Replacement Parts For Existing Machines Can Be Furnished

istics. The fabric is specified in a dobby weave with a minimum of 40 ends and 40 picks per in.; maximum weight is 4.5 oz. per sq. yd.; tensile strength not less than 40 lb. in both warp and filling; elongation not less than 45% in both warp and filling.

▼ ▼ ▼

Starch Situation Easier

With corn flowing into the market in increasing quantities, the previously reported tight situation of starch for use in textile and other industries is less acute. Corn refiners have been encouraged by Government representatives to buy all the corn they can obtain to protect themselves against a possible recurrence of the corn shortage which might follow the expiration of the price guarantee to farmers against any advance in ceiling price.

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OPA'S Recent Enactments

Twenty additional constructions of fine cotton cloth, including airplane cloth, broadcloths, marquisettes, brassiere cloth and shoe linings have been given manufacturers' cents-per-yard ceiling prices by OPA's Amendment 9 to MPR 11, effective Aug. 21, 1943. Part of a program to establish maximum prices by flat ceilings instead of through a formula, the prices are in some cases higher for the given construction and in some cases lower than obtained under the "freeze" method in the General MPR. . . .

Regan P. Connally, director of the Consumers Goods Division of OPA, has named a committee of five representatives of the knitted outerwear industry to analyze price regulation in their field. The committee will report its findings and recommendations to OPA for consideration by that agency and by an industry advisory committee which will be appointed shortly by OPA. . . .

▼ ▼ ▼

This and That

Precision gloves which enable Army and Navy flyers to handle instruments and maps without freezing their fingers when flying at high altitudes or in sub-zero weather are made from rayon, according to a recent announcement of American Viscose Corp. These gloves are worn under regular heavy lined gloves and protect the hands from "cold burn" when it is necessary to remove the heavy gloves.

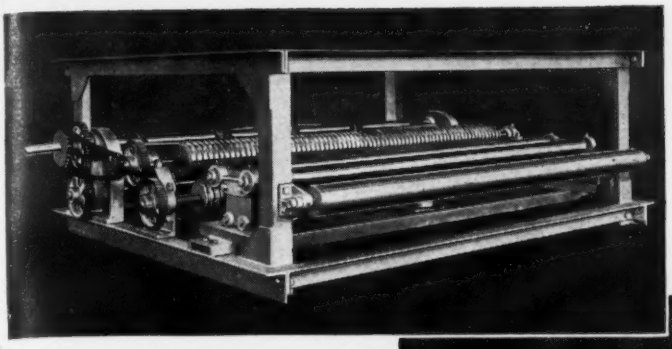
A tire retread containing only 40% as much rubber as the standard retread in general use has been developed by Alexander Smith & Sons Carpet Co. The new retread is a cotton pile fabric in which strips of rubber are inserted in the pile loops during the weaving operation and having the cotton and rubber molded by heat and pressure into a homogeneous tread in which the cotton pile is essentially vertical.

Synthetic yarn spun from egg albumin is the product of research in the Albany, Calif., laboratory of Dept. of Agriculture by Dr. Harold P. Lundgren.

Robert E. Davis, president of W. B. Davis & Son, has announced that he is planning to license manufacturers of women's, children's, and infant's hosiery to use his elastic-top patents. Interwoven Stocking Co. will continue to have exclusive rights in the half hose field.

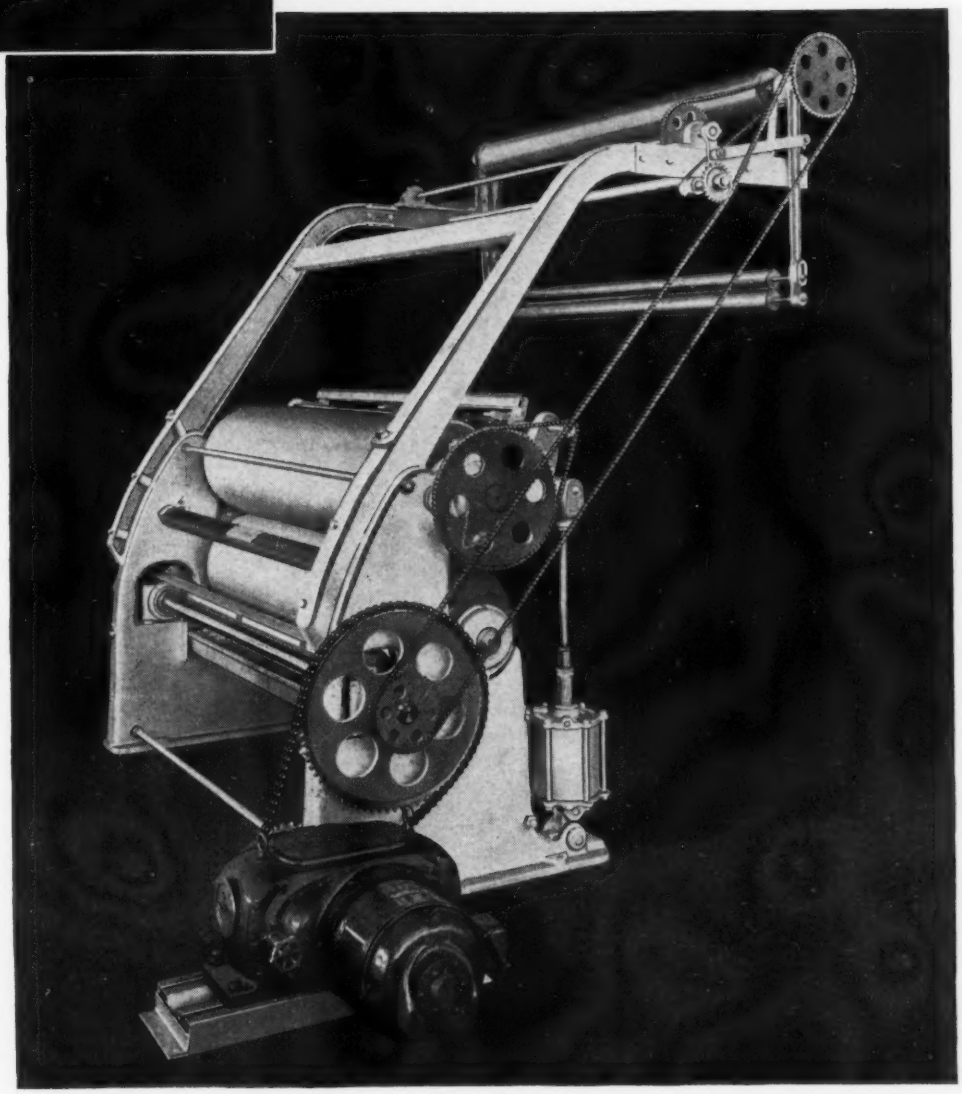
A recommended revision of a standard method for testing and reporting on woven textile fabrics is being circulated by the National Bureau of Standards to the trade for written acceptance. Principal changes recommended are broadening the scope of the standard to cover woven and

THESE ARE THE UNITS FOR CONTINUOUSLY OPENING AND EXTRACTING CLOTH AT ANY REQUIRED PRODUCTION RATE



Above: *Hunter Ceiling Scutcher*

At right: *Hunter Model G Pneumatic Squeeze Rolls.*

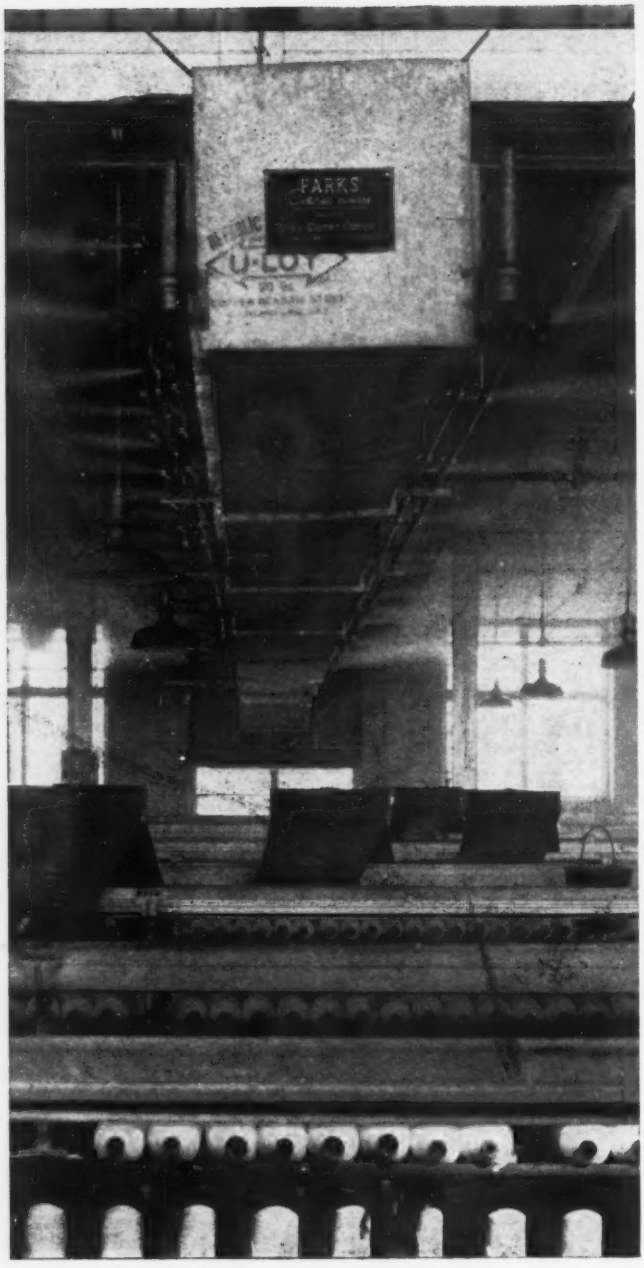


PICTURED on this page are the new Hunter contributions to faster and continuous cloth opening and extracting—at any required speed and with a high percentage of moisture removed. With the Hunter Ceiling Scutcher and Hunter Model G Pneumatic Squeeze Rolls and variable speed control, the opening and extracting operation is continuous—with one man's labor, with only 7½ H.P.—and with extraction down to 50% to 60% on the bone dry basis.

The Hunter Scutcher and Model G Pneumatic Squeeze Rolls may also be put into a continuous range with the new Hunter Tenter or Carbonizing Dryers, which affords the mill continuous flow from the washers to the drying operation.

The fact that in a handful of years, American mills have invested over half a million dollars in Hunter Pneumatically Operated Squeeze Rolls, should encourage mills now using other methods of cloth extraction to investigate the savings possible for them. You are cordially invited to write to

JAMES HUNTER MACHINE CO.
NORTH ADAMS, MASSACHUSETTS
FOUNDED 1847



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pays for itself remarkably soon

smoother, more compact drafting; less waste and fly; higher and more dependable regains; greater strength with much more uniformity of numbers.

fewer stops; fewer adjustments; fewer piecings; fewer seconds; and more acceptable working temperatures as a by-product.

Parks-Cramer Company

Fitchburg, Mass. Charlotte, N. C.

unwoven textiles, addition of new methods of testing and reporting bursting strength of knit goods, changes in methods of testing, and inclusion of additional standard samples for use in check tests.

Industrial Rayon Corp., Cleveland, Ohio, has bought the continuous process patent properties of the Imperial Rayon Corp. for $100,000. This is the "Furness process."

Celairese is a new style staple fiber made by Celanese Corp. of America which is said to make a superior interlining for garments or bed covering. It also is useful as a blend with other fibers in fabric manufacture.

The newly-organized Maine Woolen & Worsted Association met recently in Augusta, Me. Willard H. Cummings, president of the Daniel Cummings Mill in Newport, was named president.

Credit for photographs showing the conversion of Formcraft Fabrics, Ltd., of Montreal, Canada, from women's elastic girdles to stockinette meat bags for shipping meat to the Army overseas, published on page 79 of our June, 1943, issue, was inadvertently omitted. The pictures were run through the kind permission of "Courtaulds Rayon Reporter," which had them taken originally for its own use.

▼ ▼ ▼

Markets Stirring but Still Shackled

Cotton gray goods sales in August were limited, due to usual war-time factors. With 38½-in. 64x60s temporarily frozen, trade turned to 39-in. 68x64s and 38½-in. 60x48s. Allotments were made chiefly for September with a few lots for October. Coarse goods were particularly slow. Denim sales were restricted as mills tried to catch up with back orders rather than press for new commitments.

Wool goods sellers are not optomistic over the increased yardage available to citizens because of the permitted postponement of 50% of Army goods deliveries through the rest of the year. Many mills are loath to convert back to civilian goods. Several of the larger companies have made allotments of goods available in the first quarter of 1944 and these have been eagerly snapped up.

Rayon yarn scarcities which have threatened for many months, have closed in on some branches of the trade and goods are becoming harder and harder to get. This situation ties in with the growing usefulness of synthetics in military fabrics. Even though Army purchases of some textiles may shrink in coming months, no such reduction in the general call for synthetics is to be expected until some succeeding stage of favorable development of the war.

Hosiery manufacturers find their current production of rayon full-fashioned in strong demand despite the criticism of its quality in consumer circles, and the apparent spread of the bare or painted leg vogue. Half-hose mills were surprised by the Government cancellation of orders for light-weight Army socks, but they are adjusting themselves.

Underwear mills are turning out the heavier numbers for civilian use this fall and winter to the extent permitted by their available facilities and allotted yarns. Some relief to the stringency here is expected. The goods are moving into distributors' hands on an allotment basis.

Outerwear makers continue with their successful season in sweaters, shawls, etc. Their military orders remain static and give them a fair margin of production for civilians. Woven goods are making inroads on knitted in swim trunks.

TEXTILE CALENDAR

National Association of Cotton Manufacturers, annual meeting, Coplay-Plaza Hotel, Boston, Oct. 1, 1943.

Exposition of Chemical Industries, Madison Square Garden, New York, Dec. 6 to 11, 1943.

CHINES · PROCTOR DRYING MACHINES · PROCTOR DRYING MA

Recognition

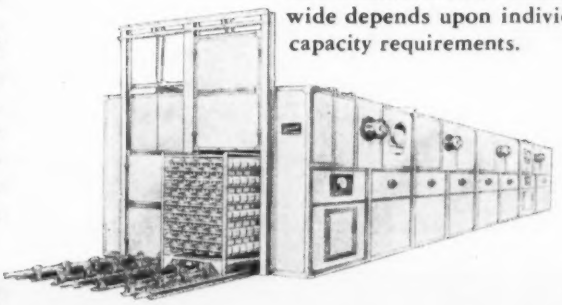
PROCTOR DRYERS
ARE RECOGNIZED BY LEADING RAYON MANUFACTURERS

Just as the men who man the machines of war recognize the splendid performance of the new synthetic rubber tires, so the manufacturers of the rayon which is used in the cords of these tires recognize Proctor Dryers as machines of the very highest efficiency. Since the rayon cords for use in tires must have a very high tensile strength, the proper drying of the rayon is of vital importance. It is in that stage that the future usefulness of the rayon can be either marred or enhanced. That is why 95% of all rayon which requires drying is dried on dryers of Proctor design and build. Proctor Dryers are designed to dry rayon correctly and perfectly uniformly. At the same time these dryers increase output and decrease production costs.

What is true of drying rayon is true throughout the textile industry. In every major industry where there is a drying problem, there is a Proctor Dryer scientifically designed and custom built to do the job right. In fact, the very synthetic rubber which surrounds rayon cords may well have been dried in a Proctor Dryer for the great majority of the machines for drying Buna-S Rubber in the U. S. Government Standardized Rubber Program are Proctor Dryers. If your product is vital to the war effort, Proctor research engineers can help you increase the efficiency of your manufacturing process today. Regardless of your status in the war program, if you have a drying problem, it is none too soon to have Proctor engineers consider its solution with a view toward that day when other-than-war products can be manufactured.

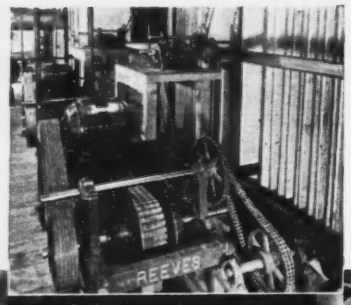
PROCTOR & SCHWARTZ · Inc · Philadelphia

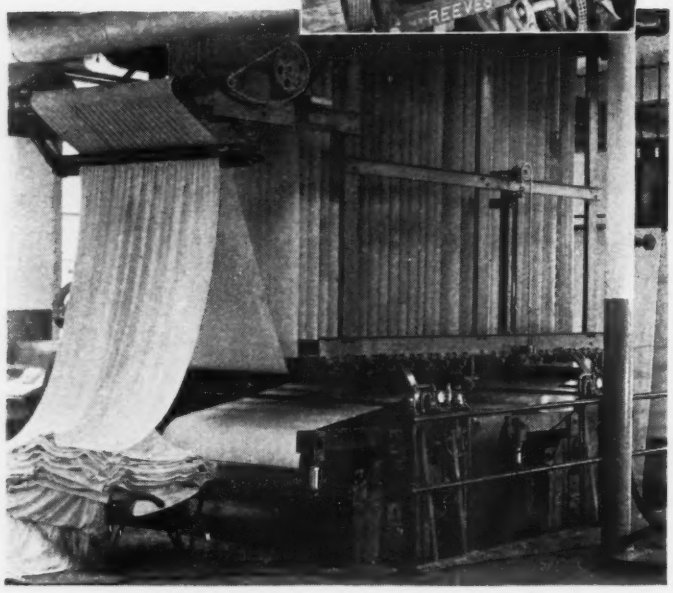
PROCTOR DRYER for RAYON in CAKES, after spinning. This machine takes the rayon through the successive steps of drying, cooling, conditioning—and delivers it dried with desired moisture content dependably uniform. The superiority of this machine is proved by its close control and correct application of air circulation, as well as accurate control of wet and dry bulb temperatures, through the successive operations. Conditions may be suited to any rayon of heavy or light denier. The number of rows of trucks wide depends upon individual capacity requirements.



CHINES · PROCTOR DRYING MACHINES · PROCTOR DRYING MA

Right—REEVES Variable Speed Transmissions regulate speed of each machine in range so material passes directly without intermediate handling.





Reeves-Driven Continuous Indigo Dyeing Range Dries and

Dyes 600 yards of woolen cloth per hour

for SERVICE UNIFORMS

Pictured here is a new continuous dyeing range built by Riggs & Lombard, Lowell, Mass., for dyeing woolen fabrics for the armed forces. Each machine in the range is driven through a REEVES Variable Speed Transmission with hydraulic automatic control. *Material passes directly from one machine to another, without necessity for any intermediate handling.* Tension on cloth is accurately and automatically controlled. Cloth is dried and dyed at rate of about 600 yards per hour, with marked savings in time, labor, material and costs . . . Another example of how REEVES Speed Control is helping speed production on all types of textile machines. One of the three basic REEVES drives—Transmission, Motor Pulley or Motodrive, can be applied to any driven machine in service. Write for Catalog ManualWG-419.

REEVES PULLEY CO., COLUMBUS, INDIANA

REEVES ACCURATE POSITIVE **SPEED CONTROL**

NEWS ABOUT MEN

Malcolm E. Campbell, research manager of the Textile Research Institute, has been named dean of the textile school at North Carolina State College, Raleigh, succeeding Thomas Nelson, who is now dean emeritus. Mr. Campbell is a graduate of the New Bedford Textile School. He was an assistant in cotton research with Firestone Rubber Co., instructor in textile engineering at Clemson College, and more recently specialized in cotton research for the U. S. Department of Agriculture.

E. Max Schenke has resigned as research director for National Association of Hosiery Manufacturers, New York, after 21 years in that capacity. He will take up farming near Gaithersberg, Md. The association will arrange to continue its technical service for members.

C. C. Harding has become president and treasurer of Piedmont Silk Co., Greensboro, N. C., succeeding **R. P. Shapard, Jr.,** of Griffin, Ga., who has retired. **J. C. Bullock** has become secretary and superintendent of the plant.

E. Kent Swift, president of Whitin Machine Works, Whitinsville, Mass., has been elected to the board of directors of Bigelow-Sanford Carpet Co., Inc. He fills the vacancy caused by the death of Sewall H. Fessenden.

T. Wendell Prestwich has been named vice-president of the American Woolen Co., New York, in charge of manufacturing (worsted division), and **Andrew B. Walls, Jr.,** has been named vice-president in charge of manufacturing (woolen division).

Marvin Cross, who joined Southeastern Cottons, Inc., less than six years ago as manager of the fine and fancy goods department, has been elected executive vice-president of the company and also a member of the board of directors.

Amos E. Taylor has been appointed by President Roosevelt as director of the Bureau of Foreign & Domestic Commerce of the Department of Commerce, Washington, D. C., to succeed **Carroll L. Wilson,** who resigned July 15 to devote his full time to the Committee for Economic Development.

Herbert J. Cunliffe, formerly with Russell Mfg. Co., has been named general manager of Delite Fabrics, Inc., Westerly, R. I., and **Edwin Martin** has been named sales manager of that company with headquarters at the firm's New York office.

Robert W. Twitty, vice-president of Marion Mfg. Co., East Marion, N. C., was elected treasurer also, to succeed the late S. L. Copeland.

D. H. Caudle, superintendent of Glen Raven Mills No. 2, Kinston, N. C., has resigned to accept a similar position with the Smyre Mfg. Co., Gastonia. He succeeds **Marshall Dilling** who recently retired.

William A. B. Vivian, chief plant engineer of Nitro, W. Va., plant of the American Viscose Corp., has retired after 17 years

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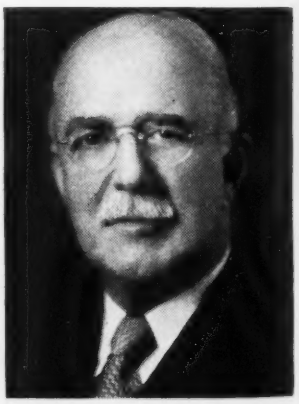
FRANKLIN W. HOBBS, president of Arlington Mills, Lawrence, Mass., and chairman of the Textile Foundation, celebrates his 75th birthday on Sept. 24. Mr. Hobbs' textile career has been long and active. He marked the 50th anniversary of his connection with Arlington Mills Jan. 28, 1941. He has the unique honor of being past-president of both National Association of Cotton Manufacturers and National Association of Wool Manufacturers. His prominence in the field of textile research is indicated by the fact that he has been chairman of the Textile Foundation since its formation in 1930. Each year he has been designated a director of the Foundation by the President of the United States, and each year the directors have re-elected him chairman.



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of service with the company. He is being replaced by **Edward A. Morse,** his assistant.

Cherry L. Emerson, vice-president of Robert & Co., Atlanta, Ga., has been appointed assistant to **Dr. M. L. Brittain,** president of the Georgia School of Technology, Atlanta. Mr. Emerson will devote as much time as possible outside of his other business duties in assisting Dr. Brittain, particularly in matters connected with the school's military training program.

Olin H. Dunn has resigned as manager of Southern Cotton Co., Birmingham, Ala., to become superintendent of Tifton (Ga.) Cotton Mills. Formerly, Mr. Dunn was with Avondale Mills, Sylacauga, Ala.

John Halleran has resigned as advertising manager of North American Rayon Corp. to become associated with Burlington Mills Corp., New York.

L. O. Walker is the newly-elected president of the foreman's club of York Mfg. Co., Saco, Me. He presided over the Aug. 31 meeting which was addressed by **J. Stirling,** general superintendent; **C. Miller,** assistant superintendent; **L. Patriquim,** office manager; **J. Salvas,** personnel manager. The meeting was attended by 26 members and 4 guests.

Harold C. Smith, former assistant in the carding and spinning department, Bradford-Durfee Textile School, Fall River, Mass., has been promoted to head the department, in place of William A. Goss, deceased. Mr. Smith will have charge of the textile testing laboratory in addition. He had served as assistant in this department for the last 20 years.

Dr. Charles S. Venable, previously in charge of the viscose chemical research laboratory of American Viscose Corp., Marcus Hook, Pa., has been appointed director of chemical research for the corporation. **William Koster,** previously in charge of acetate and Vinyon research at Meadville, Pa., has been named assistant director of chemical research.

DR. CHARLES S. VENABLE, now director of chemical research for American Viscose Co.

CHERRY L. EMERSON, now assisting the president of Georgia Tech.

John W. Nickerson, general superintendent of Cheney Bros., South Manchester, Conn., and associated with the company since 1914 until his appointment to the Labor Branch of the War Production Board, has been named director of the new Management Consultant Division to advise on broad management practices and to promote effectiveness in war production.

William B. Olmsted, Jr., general sales manager of American Viscose Corp. has accepted the designation of honorary vice-chairman of National Bible Week for 1943, representing the rayon industry.

Frank Thomas Roberts, assistant to the plant manager of S. Slater & Sons, Inc., Slater, S. C., has moved to Greensboro, N. C., where he has become cost accountant for the following mills; Carter Fabrics Corp., Greensboro and South Boston, Va., Cleveland Cloth Mill, Shelby, N. C., Stanley Mill, Stanley, N. C., and S. Slater & Sons.

J. B. Fawcett has been named manager of Tennessee Knitting Mills, Inc., Columbia, Tenn., succeeding **Frank Cover,** who is now in the Navy.

Culver Batson, for 22 years superintendent and general manager of the Lynchburg, Va., plant of Consolidated Textile Corp., resigned Sept. 3.

James A. Goldsmith, president of Hess, Goldsmith & Co.,

ONLY DELIVERED HORSEPOWER COUNTS

When you hook up your motors to production machines with Matched-Quality D-V Drives you deliver a knock-out punch to "power absenteeism." You are putting *all* the power into production for stronger Victory drives on battle fronts.

A well engineered team, Dodge D-V Belts and D-V Sheaves go "all out" *together*. Their matched-quality construction puts *all* the power to work. Special tooling and precision gauges insure uniform accuracy. Each D-V *Sheave* is precision-grooved to insure proper seating of each belt. With D-V Matched-Quality drives you are sure of:

✓ Uniform seating of each individual D-V Belt . . . ✓ no sag, slip or uneven belt pull . . . ✓ every individual D-V Belt does its full share of the work . . . ✓ less wear on belts, sheaves and other transmission parts, thus conserving critical materials and reducing operating costs. Dodge D-V Drives assure clean, silent, low-cost operation. ✓ No lubrication required . . . ✓ no danger of oil damage to product . . . ✓ no adjustments required . . . ✓ maintenance is reduced to a minimum . . . ✓ peak power transmission efficiency and economy are certain!

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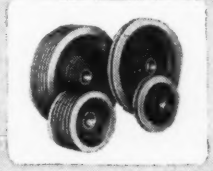

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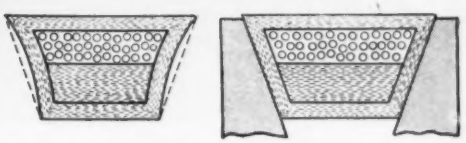
THROW ALL YOUR SCRAP INTO THE FIGHT! BUY MORE WAR BONDS!

THE RIGHT DRIVE FOR EVERY JOB



Dodge D-V Belts have concave sidewalls. When flexing around sheave, the sidewalls flatten out straight, thus providing full contact between the V-Belt sides and the sheave groove. This insures even pull, eliminates slippage, prevents power-loss.

★

Belts with flat sidewalls will bulge in center when flexing around sheave, thus making only partial contact with the sides of the sheave groove.

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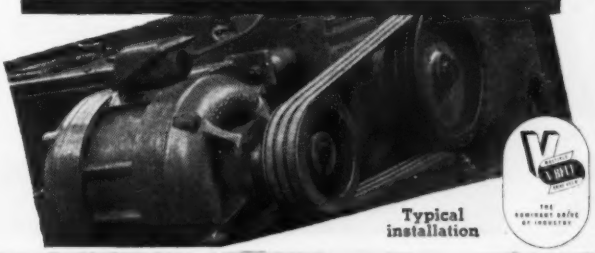
IMPORTANT NOTE: It takes D-V Sheaves and D-V Belts to give you a Dodge "Matched-Quality" D-V Drive.

GET THIS

Precision machining of D-V Sheaves insures smooth grooves of uniform pitch diameter which means long belt life, accurate seating of belts, even pull, full power delivered to work.

NOT THIS

This is what happens when sheave dimensions are not uniform. Belts can't seat properly and pull unevenly. Loafing belts mean lost power, shorter belt life.



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NEWS ABOUT MEN

Inc., New York, last month celebrated the 50th anniversary of his association with the textile industry. He served as president of the Silk Association of America from 1921 to 1925.

William E. Coakley has resigned as superintendent of Greenwich Bleachery, East Greenwich, R. I.

Eldon R. Campbell who has for many years been associated with the mohair industry, has joined the staff of Massachusetts Mohair Plush Co. His headquarters will be in New York.

Carl W. Von Dreele has joined North Star Woolen Mill Co., Minneapolis, as comptroller, assistant secretary and assistant treasurer. For the last six years he has been associated with the manufacturing division of Marshall Field & Co. in Pawtucket, R. I.; and Spray, N. C.

Reuben B. Rapp, formerly vice-president of Riverside (N. J.) Yarn Mills has joined the Textile Research Department of American Viscose Corp.

J. C. Edwards, Jr., formerly plant engineer at Exposition Cotton Mills Co., Atlanta, Ga., has been promoted to superintendent, succeeding **Fred L. Still,** resigned.

C. R. Trembath, superintendent of Southern Asbestos Co., Charlotte, N. C., has resigned.

C. L. Black has been appointed superintendent of the Sycamore, Ala., unit of Avondale Mills, succeeding **Vincent A. Mims,** resigned. Mr. Black was promoted from head of the carding department.

John J. Lyons, Jr., formerly in charge of finishing at Worumbo Mfg. Co., Lisbon Falls, Me., has become superintendent of River Point (R. I.) Finishing Co.

Fred Lemmond, Greensboro, N. C., is the newly appointed southern representative of the factoring division of Crompton-Richmond Co., Inc.

Charles L. Taggart has been appointed superintendent of the Calumet unit of Callaway Mills, LaGrange, Ga., succeeding **J. Morgan Jackson.**

Donald Carroll, for a number of years technical superintendent of Winnsboro (S. C.) Mills, of United States Rubber Co., has been transferred to the New York office of the company in a technical capacity. **Tom Sprott** has been promoted to technical superintendent to succeed Mr. Carroll.

DR. ALFRED R. MACORMAC, now associate textile technologist at Jeffersonville QM Depot.

J. W. O'Neal, Gainesville, Ga., has been appointed general superintendent of the Pacolet Mfg. Co., for its plants at Gainesville, Ga., New Holland, Ga., and Pacolet, S. C. For eight years Mr. O'Neal was superintendent of the Gainesville (Ga.) Cotton Mills, which were recently acquired by the Pacolet company.

John Henry Tate has resigned as overseer of weaving at the No. 1 unit of Republic Cotton Mills, Great Falls, S. C. He has been succeeded by **Harvey Ewings,** of Anderson, S. C.

M. G. Moksnes, of Versailles, Ky., is the newly-appointed district manager of the War Hemp Industries, Inc., an organization which was recently created for the operation of hemp processing plants in half a dozen States.

Joseph Givener, general manager of Real Silk Hosiery Mills, Inc., Indianapolis, has resigned.

T. C. Frank has become manager of Phoenix Mills, Inc., Statesville, N. C., which mill was recently acquired by I. Rogosin, of New York.

Robert G. Mallard has resigned as service salesman for the Draper Corp., Hopedale, Mass., and joined the Androscoggin Mills, Lewiston, Me., in an executive capacity.

Jane Byrne, formerly of B. Altman & Co., New York, has joined the American Viscose Corp., and will act as field

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BLOW, cold winds of the Arctic! Pour, drenching rain of the tropics! Scorch, blazing sun of the desert!

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THESE questions are answered for you — specifically and definitely — in this book. "A long-time need by the textile industry and allied trades has been met by its publication," says *Textile World*. "Provides a text and reference book of inestimable value to textile manufacturers, designers, converters, selling agencies, students, wholesalers, department-store buyers, and persons interested in home economics. Included in the book are definitions, descriptions, constructions, and illustrations of the many types of plain-woven fabrics, leno fabrics, twills, sateens, crepes, terry, and other fabrics manufactured for apparel, household, and industrial purposes. Two features which merit particular commendation are the illustrations, natural size and enlarged, of nearly 200 different fabrics, and the excellent index."

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Brings you step-by-step, clear, practical instructions on all phases of cotton loomfixing. The material is so presented that the book can serve as a textbook for courses in loomfixing or as a self-study manual for those who wish to learn the art of loomfixing or who wish to improve their knowledge and skill.

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2. Gray Leno-woven Fabrics
3. Gray Twill-woven Fabrics
4. Gray Satin-woven Fabrics
5. Staple and Specialty Dobby-woven Gray Cloths
6. Towelings
7. Colored-yarn Fabrics
8. Tickings
9. Flannels
10. Seat-cover and Awning Fabrics
11. Drapery Slip-covers, and Upholstery Fabrics
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Descriptions and Names of Converted Cloths (Not Basic Fabrics)

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☐ Moberg—Cotton Loomfixers' Manual, $2.50

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City and State .....

Position .....

Company FTW-9-43

MAIL THIS COUPON

representative of the Retail Division of the Advertising Department, with headquarters at the company's Lewistown, Pa., plant.

A. G. Ascincio, who was superintendent of the Clark Thread Co., Austell, Ga., has been transferred to Pelham, Ga., as manager of the new unit.

F. M. Burton, Starr, S. C., formerly an overseer at the Toxaway plant of Gossett Mills, Anderson, S. C., has become superintendent of Gossett Mills, Pendleton, S. C.

Textile Men in Armed Services

Thurmond Chatham, commander, U. S. N. R., president of the Chatham Mfg. Co., Elkin, N. C., who has been in Washington, D. C., for more than a year, has been assigned to duty at sea.

F. M. Kimble, Jr., president of Mandeville Mills, Carrollton, Ga., has been appointed a colonel on the staff of Ellis Arnall, governor of Georgia.

James D. Hammett, assistant treasurer of the Chiquola Mfg. Co., Honea Path, S. C., until he entered the armed services, now a lieutenant, has been transferred from the textile branch of the Office of the Quartermaster General, Washington, D. C., to Camp Lee, Va., where he is taking advanced training prior to field duty.

Col. Vere Painter, known to the textile industry through his many years at Philadelphia QM Depot, has been awarded the Legion of Merit Medal for outstanding service in organizing the Quartermaster service at the Eastern Base Section, North Africa.

A. M. Whisnant, assistant sales manager of Stonecutter Mills Co., Spindale, N. C., now on leave, is serving overseas as a captain in the Army.

LT. BENJAMIN A. ALFORD, assistant to the officer in charge of inspection at the Philadelphia QM Depot, who was assistant to the director of the Sanforizing Division of Cluett, Peabody & Co., before receiving his commission.

CAPT. MALCOLM D. McMEEKAN of Philadelphia QM Depot, who is engaged in research and development work on narrow fabrics, jungle equipment and sleeping bags. He was recently promoted from lieutenant. Before receiving his commission, Captain McMeekan had been engaged in production control work for the Westboro Weaving Co.

Louis Phillips, formerly engineer at Riverside Woolen Mill, Stafford Springs, Conn., has entered the U. S. Army Engineer Corps with the rank of technical sergeant.

William L. Hicks, officer in charge of the textile and thread section, quality control branch, Jeffersonville QM Depot, has been promoted to captain.

Lew Hamity, who, with his father, represented the Industrial Rayon Corp. and Colonial Mills in Chicago and the Midwest, before entering the Navy, has received his wings after his aviation training at Pensacola.

William W. Goodman, vice-president and treasurer of American Finishing Co., Memphis, Tenn., has been promoted from major to lieutenant colonel. He is on the staff of General Arnold at the Army Air Forces Headquarters in Washington.

John Richardson, on leave

ONYX

Official U. S. Navy Photograph

HAIL THE NAVY WAVES!

The Navy Waves are contributing a full measure to the War job. Hail the Waves! From hats to hosiery there is nothing smarter nor more serviceable than their attractive uniforms — thanks to the American Textile Industry.

Onyx Research and Production are working hand in hand with textile mills and finishing plants to the end that America's war time fabrics are better in every way.

If you have a processing or finishing problem let Onyx Research help you. Your inquiries are solicited.

A few Onyx Products making war fabrics look better—wear better

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ATTENTION!

That's what your fabrics will get from the purchaser when you use

DRUMMOND SOAP

Here's why . . . If you have to meet Army Quartermaster Department specifications your fabrics will show a big improvement right down the line if you use

DRUMMOND SOAP

It's a high-body product of low alkali content . . . No filler of any kind . . . A high binding quality that results in minimum flocking . . . Saves on steam and water because it rinses easily and completely . . . Better fulling and scouring . . . Leaves fabric perfectly clean with softest feel, better hand, brighter colors and whiter whites . . . Want to try it? Just write us today for a free working sample and test Drummond Soap on your own goods.

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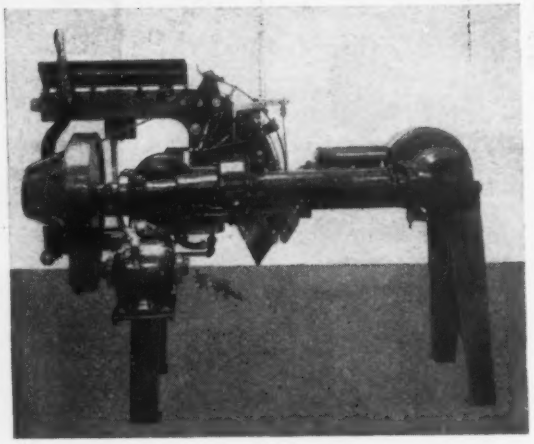

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HIGH CLEANING CAPACITY
Protects barrel and finish. Usually pays for itself in one year—always within 18 months.

Complete information promptly furnished upon request

The Terrell Machine Co., *Inc.*
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E. W. S. Jasper, Inc., Elizabeth, N. J.—Penn., N. J. and N. Y.
Geo Thomas & Co. . Manchester, England.—European Agt.

NEWS ABOUT MEN

from Crompton & Knowles Loom Works, Worcester, Mass., is a major in the Army and has been assigned to Jefferson Barracks, Mo.

Edwin L. Atkins, on leave from Deering, Milliken & Co., New York, now a major in the Army, has recently returned from the African front and is at present maneuver director at a camp near Nashville, Tenn.

Charles Bateson, who before his entry into the Army Air Force, was connected with the New York office of Standard Knitting Mills, has been decorated with the air medal for his participation in activities in the Southwest Pacific.

Hooker Stoughton, on leave from Scovill Mfg. Co., New York, is now a lieutenant at Student Officers Section, Hendricks Feld, Fla.

Helen McCall, is now seaman second class in the Waves. She was formerly of the Pacific Mills office force at Lyman, S. C.

John Kelly, on leave from Davis & Catterall, New York, is now at Fort Eustis.

Wm. L. Hicks, formerly an instructor of textile chemistry and dyeing at Clemson College, S. C., before entering the Army, has been promoted from first lieutenant to captain at the Jefferson (Ind.) Quartermaster Depot.

William Cowan, formerly in the sheet and pillowcase department of J. P. Stevens & Co., is now a sergeant at Corronaca Army Air Field, Greenwood, S. C.

Albert G. Myers, Jr., Gastonia, N. C., son of **A. G. Myers,** president of Textiles, Inc., and prominently connected with the textile industry before entering the Army, has received his wings at Langley Field, Va., and has been transferred to Memphis, Tenn.

Frederick E. Fowler, formerly with Philadelphia office of American Viscose Corp., has graduated from a four months' course at the Naval Training School at Notre Dame University, and is now an ensign in the Navy on active duty on the West Coast.

Charles Verner, who served as assistant superintendent of the Gossett Mills, Calhoun Falls, S. C., before entering the Army two years ago, has returned to the United States following a tour of duty in Iceland which lasted more than a year. He is a lieutenant.

Obituary

Ewald H. Schniewind, 56, for many years before his retirement with Susquehanna Silk Mills, New York, as senior vice-president, died Aug. 9 at Nantucket, Mass., while on vacation. He retired from Susquehanna in 1937 to devote his time to metal manufacturing.

Rudolph W. Adler, 47, president of Cashmere Corp. of America and vice-president of the Erie Dyeing & Processing Co., Toledo, Ohio, died Aug. 10.

Ernest G. Alberque, Sr., 68, secretary-treasurer and co-founder of Passaic (N. J.) Piece Dye Works, and president of Progressive Silk Finishing Co., Hoboken, N. J., died Aug. 9.

Roy Grieve, 65, New York and eastern sales manager of Superior, Inc., Piqua, Ohio, died Aug. 7.

Frank F. Lyon, 63, for the last 14 years president and purchasing agent for Charles Lachman Co., Phoenixville, Pa., died recently at his home in Narberth, Pa.

Joseph Feldman, 39, president of Oakdale Woolen Co., New York, died last month.

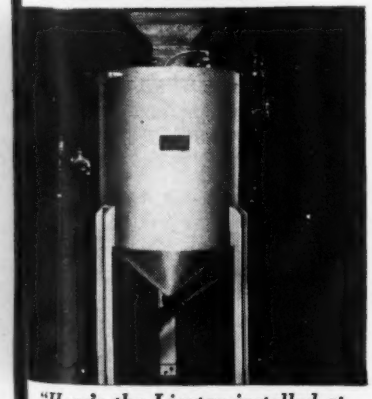
J. Ross Collins, 80, active for many years in the burlap and jute importing business in New York until his retirement about ten years ago, died in New Rochelle, N. Y., Aug. 14.

George E. Farrell, 79, who in 1892 merged five knitting firms in and around Utica, N. Y., to form the Utica Knitting Co., died in Oswego, N. Y., recently. He retired about 30 years ago.

Fred J. Risk, head of the New York office of Mt. Airy, (N. C.) Knitting Co., died Aug. 18.

William Mailer, 58, for the last 18 years president of Bing-

SALTY SAYS: "You eliminate spotting, streaking, and white edges with 100% saturated brine!"



"Here's the Lixator installed at Walker County Hosiery Mills, Lafayette, Ga."

"WHY? Well, it's this simple. Brine disperses *evenly* throughout the vat . . . there are no undissolved crystals to ruin the dye-lot when you use *100%* saturated brine.

"And there's no difficulty in getting 100% saturated brine—every time—when you install a Lixator. It's produced *automatically*. Important, too, is the fact that the Lixator uses no stirring devices—either power or manually operated.

"Thus the Lixator helps cut your production and maintenance costs...requires no power or constant repair-man supervision! Furthermore, the Lixator cuts costs by using 10% to 20% *less* salt—utilizes inexpensive Sterling Rock Salt!

"But what about installation? Does it cost a young fortune? No sir! There's no investment in machinery required. You merely lease the Lixator for a very nominal annual sum!

"Into the bargain, the Lixator will not only help you to achieve level dyeing . . . it will give you *perfect* zeolite water softener regeneration also. Would you like to get *all* the facts? Send for the booklet below!"

"IT'S FREE!"

"Let me send you this 36-page, fully-illustrated booklet on the Lixate Process for making brine. It gives you all the facts—installations, brine tables, diagrams, formulas. Just write for *your* copy, today!"

The LIXATE Process

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for making brine

INTERNATIONAL SALT COMPANY, INC., DEPT. T-9, SCRANTON, PENNSYLVANIA

MOISTURE CONTROL

Rapid

Accurate

with the

DIETERT MOISTURE TELLER

RAW STOCK
COTTON
WOOL
SILK
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Here's an inexpensive, practical moisture tester and control. Assures savings in processing time, reduces rejections, and improves product quality. Write for literature on Moisture testing by drying.

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9330 ROSELAWN DETROIT, MICH.

They want jobs,
not dimes,
when they come home

Buy War Bonds—buy more bonds —so there'll be prosperity and jobs for the boys when they come home this time.

Shamrock

Canvas Baskets, Hampers, Trucks

Manufactured by
MEESE, INC.
Madison, Ind.

hamton (N. Y.) Silk Mfg. Co., died last month.

Carl Harwood Hazard, 49, founder and president, Hazard Advertising Corp., New York, died Aug. 23. He was widely known in the chemical and industrial advertising fields. Before founding his agency in 1920, he had been sales and advertising manager of the American Synthetic Color Co., and advertising manager of H. A. Metz Laboratories, Inc. Among the Hazard accounts which are well known in the textile field are: American Cyanamid & Chemical Co., Torrington Co., Scott & Williams, Inc., and Niagara Alkali Co.

Clarence J. Huff, vice-president in charge of sales of Procter & Gamble, Cincinnati, since 1938, died at his summer home at Hampton, N. H., Aug. 17. He was 53 years with the company.

Burton E. Oppenheim, 47, deputy executive director of WLB, previously in the textile division of OPA, and since NRA days a Government official after apprenticeship in the garment industry, died in Washington, late last month.

Edward F. Woodside, who, until his retirement, was active in the Woodside mill group including Pelzer, Simpsonville, Woodside and Easley, died at his home in Greenville, S. C., Aug. 20.

Albion J. Wadhams, 68, vice-president and general manager of the Development & Research Dept. of International Nickel Co., New York, died Aug. 22.

Isham D. Wingo, 52, for more than 20 years previous to a year ago manager of Atlanta office of Whitin Machine Works, died Aug. 28 in Greenville, S. C.

George W. Merrow, 92, a director and for many years secretary-treasurer of Merrow Machine Co., Hartford, Conn., died recently.

Morris Polin, 69, founder and president of Mammoth Hosiery Mills, Trenton, N. J. and Stroudsburg, Pa., died in Philadelphia recently.

Francis B. Sears, 61, formerly connected with Wellington Sears & Co., Boston, Mass., prominent in banking circles and a director in a number of cotton mills, died on Aug. 12.

Henry Anthony DuVillard, 84, former president of the Textile Finishing Machinery Co., Providence, R. I., died in that city on July 31. He was employed by the Corliss Steam Engine Co. and Granger Foundry & Machine Co., Providence. Later these and other organizations were formed into the textile machinery company, and Mr. DuVillard headed the latter from 1931 to 1941, remaining on its board since that time.

Harry Tunstall, 71, Fairhaven, Mass., died recently after over 50 years in the textile business. He traveled through Europe and Russia for Dobbs & Barlow, of Bolton, England, and came to this country around 1895 as representative of that firm. He entered cotton manufacturing later and for a time was agent of Wamsutta Mills, New Bedford. He resigned in 1916 to manage the patent rights of the Tunstall comber, which he invented.

R. B. Timberlake, 48, for the last seven years general superintendent of the American Textile Woolen Co., Sweetwater, Tenn., died Aug. 5. He was with the company 32 years.

Lewis T. Harrower, manager of the Leon Ferenbach Silk Co., Inc., Johnson City, Tenn., died recently.

Carl M. Snyder, assistant manager of General Electric Co.'s Appliance & Merchandise Department, Bridgeport, Conn., died Aug. 14, in New Haven.

Henry B. Roberts, 63, of Mount Vernon, N. Y., statistician for the New York Cotton Exchange, died July 30.

Harry Brown Logan, 5[illegible] purchasing agent for Pepperell Mills, Lindale, Ga., died Aug. [illegible] at Spindale, N. C.

William Finlay, 69, chief engineer of Hayward Schuster Co., Webster, Mass., died at Worcester, Mass., Aug. 7.

Laurence B. Holt, 57, work manager of Scott & Williams, Inc., Laconia, N. H., for many years, died recently in Greensburg, Pa.

Warren S. Graves, 85, retired, for many years a foreman at Charlottesville (Va.) Woolen Mills, died July 31.

William D. Lamp, 67, foreman at Dunn Woolen Co., Martinsburg, W. Va., is dead.

Edward P. Sheridan, retired superintendent of Lum Knitting Mills, is dead in Pawtucket, R. I.

Alfred Chasse, 57, for many years an overseer at Great Falls Mfg. Co., Somersworth, N. H., is dead in Sanford, Me.

Introducing COLACET*

Franklin's WATER REPELLENT

Especially developed for textiles, to give extra protection, greater beauty and serviceability to cotton, linen, natural silk, rayon, cellulose acetate and wool—in short to textile articles of all kinds, from aprons to uniforms.

Colacet, a concentrated wax emulsion, imparts an unusually high degree of water repellency to any fabric on which it is used, **but it does more.** It makes it spot resistant, stain and perspiration resistant, too. It adds a rich-looking sheen to the surface. It enables the fabric to more effectively resist wrinkling and wilting.

Colacet is colorless, odorless. Will not change the texture of the finished fabric. Will not harm either the skin or the most delicate material. Write today for complete technical information.

*Colacet conforms to Quartermaster Corps Tentative Specifications P.Q.D. No. 115b dated November 19, 1942

COLACET

FRANKLIN RESEARCH COMPANY

Makers of Rubber Gloss . . . PHILADELPHIA

The Fleet Line

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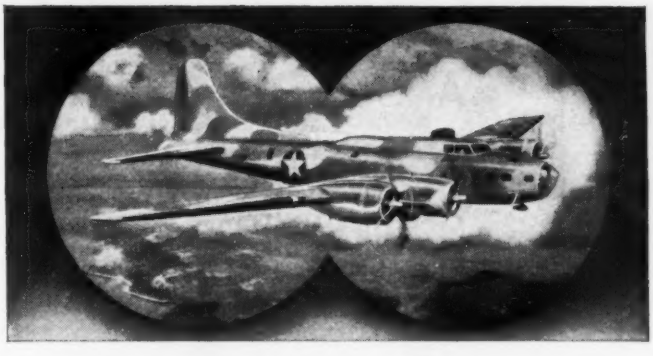
Fulling Mills • Washers — Batch and Continuous • Derby Dry Cleaners • Piece Dye Kettles • Stock Dye Kettles • Carbonizing Ranges • Dye Becks • Rope Soapers • Soaping Machines • Pusher Mills • Soap Distributing Systems • Top Dyeing Machines • Progressive Jigs • Yarn Steamers

RIGGS AND LOMBARD
INCORPORATED
Foot of Suffolk Street · · · Lowell, Mass.



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is keeping all HOFMANN plants occupied fulfilling Uncle Sam's requirements. Then, too, we are striving to fill the needs of our customers with all the speed and dispatch possible. We appreciate the fine spirit of co-operation that the trade has shown and look forward to the days of peace and 100 per cent service!

ALFRED HOFMANN PLANTS

WEST NEW YORK, N. J.

ARMY E NAVY

Manufacturers of Tricot Full Fashioned Hosiery and Other Textile Machinery and Attachments. Supplies for Full Fashioned Hosiery Machinery.

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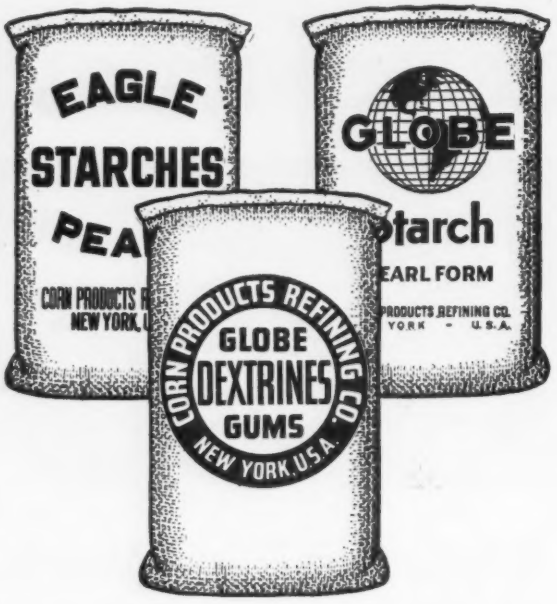
Southern Representative:
SOUTHERN HOSIERY MACHINE & SERVICE CO., Valdese, N. C.

FOR
CLEANLINESS
UNIFORMITY
and SERVICE
USE

Corn Products Warp Sizing

AND

Finishing Starches



The uniformity, cleanliness and consistent high quality of Corn Products starches and gums are well-known to leading textile manufacturers. The technicians of Corn Products are always glad to help the manufacturer with Warp Sizing, finishing or other textile problems.

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Spartanburg, S. C. | Birmingham, Ala. | Boston, Mass.

TEXTILE MILL NEWS

Cotton Mill News

Ayres-Law Textiles, Inc., Greenville, S. C., recently chartered with capital of $10,000, plan operation of local mill for manufacture of cotton specialties. New company is headed by Ward L. Ayres and J. McD. Law, both of Greenville.

Bagpipe Mills, Laurinburg, N. C., have been purchased by Julius W. Abernathy, of Newton, N. C., and W. Henkel Smith, Lincolnton, N. C., who will operate the mills as the Abernathy Mfg. Co. The plant has 1,224 spindles and 40 looms.

Beaumont Mfg. Co., Spartanburg, S. C., has opened a new testing laboratory at its plant.

Braided Fabric Co., 223 Harrison St., Providence, R. I., has begun erection of one-story addition, for which building permit recently was secured.

Buffalo, (N. Y.) Woven Label Works have been purchased by Jay J. Merlein of Merlein-Urban Co. New officers are Mr. Merlein president; Harry Lackritz treasurer-secretary; Joe Lackritz, vice-president. Albert Lee is plant superintendent.

Charlotte (N. C.) Textile Co. has been formed with authorized capital of $100,000 to do a general manufacturing business. Incorporators include Fred R. Helms, R. P. Jamison and Elsie Sample.

Greenville (N. H.) Mills have taken over former mill of White Bros., Inc., East Jaffrey, N. H., recently purchased, and work on modernization and improvements has been placed under way. Plant consists of 10 buildings, totaling 100,000 sq. ft. of floor space, and has been idle since former owner consolidated operations at mill at Winchendon Springs, Mass. Greenville company, a subsidiary of Wellington Sears Co., will operate as a branch mill for production of rayon fabrics.

Hollywood Textile Co., New Braunfels, Tex., is the name of the newly organized Texas Gauze Mills. R. J. Adams is plant manager.

Lawrence Products Co., Attala, Ala., cotton goods, is now operating a new mill division for manufacture of woven and looped pile rugs.

Mason Netting Co., Bennettsville, S. C., manufacturers of camouflage net for the Navy, has begun work with a second shift, the company now employing 350 operatives.

Native Lace Works, Inc., Hightstown, N. J., has purchased H. & F. Binch, Inc., Glens Falls, N. Y., and will convert to manufacture of camouflage netting on a two-shift basis. New officers are Leo Birnbaum, president; Edgar K. Moses, vice-president; John S. Lawrence, treasurer, and Max Solomon, secretary. Native Lace Works, Inc., is one of the mills controlled by Native Laces Textiles, Inc., New York. Gustave Gerstle of the latter company has been appointed production manager of the Binch mill.

Postex Cotton Mills, Post, Tex., closed sometime ago because of what the management termed impractical price ceilings, have been purchased by Leslie, Evans & Co., of New York. The new mill will be known as the Postex Cotton Mills, Inc., and will soon reopen. All department heads will be retained by the new company, but none of the former officials of the mills will be associated with the new concern.

Parkin Yarn Mill, Pawtucket, R. I., has purchased five-story mill building at 19-21 Commerce St., totaling 47,000 sq. ft. of floor space, which it has occupied under lease for a number of years. A part of structure will continued to be leased to other companies, including Pawtucket Braided Rug Specialty Co., Inc.

Pearl Mills, Boiling Springs, N. C., recently organized by R. J. Woods, of Waco, N. C., have about completed installation of 2,520 spindles for manufacture of coarse yarn. The new firm is housed in the building which was formerly used by Boiling Springs Hosiery Mill.

Powdrell & Alexander, Inc., Danielson, Conn., reports net earnings for six months ending June 30 of $151,381 after taxes, compared with $141,50[illegible] for the corresponding period last year. Net sales amounted to $4,423,348.

Sellers Mfg. Co., Saxapaw, N. C., was damaged by fire Aug. 27. The blaze was confined to the main spinning room, burning over a space of around 100 sq. ft. The loss was estimated at $50,000.

Queen City Cotton Co., Burlington, Vt. Former mill of

Nine Ends in One Motion

FEW operations in loading a warper are as time-consuming as laying ends into the comb. Realizing this, designers of the Barber-Colman Super-Speed Warper devised a special comb with teeth of graduated length arranged in groups of nine to correspond with the number of ends coming from each vertical row of cheeses. Thus, to set a row of nine ends into the comb, the operator simply spreads the ends and, with a simple turn of her hand, drops them into their proper places in a single motion. This is not only easy to do but it materially speeds up the loading of the warper and is one of several reasons why the loading of a Barber-Colman Super-Speed Warper can be accomplished in a relatively short time. While these thoughtful details have been aimed at increasing production, they are also planned to require less effort on the operator's part —and that is why operators on Barber-Colman Automatic Spoolers and Super-Speed Warpers are able to turn out more war work faster, and with less effort.

For Example . . .

The following warper production figures show results being obtained in a well-known mill now running large quantities of war goods.

Count	40s
Ends on Beam	457
Beams per Set	3
Yardage on Beam	26,000
Net Weight of Full Beam	350 lbs.
Beams per Warper per 24 hr. Day	17

AUTOMATIC SPOOLERS • SUPER-SPEED WARPERS • WARP TYING MACHINES • TWISTER CREELS • MOISTURE CONTENT CONTROLS

BARBER-COLMAN COMPANY

ROCKFORD, ILLINOIS, U. S. A.

FRAMINGHAM, MASS., U. S. A. GREENVILLE, S. C., U. S. A. MANCHESTER, ENGLAND

INFRA-RED
RADIANT HEAT GENERATORS

For All Types of

DRYING, CURING, SINGEING, SHRINKING

- **Automatic operation . . . for maximum efficiency**
- **Controlled temperatures . . . for uniform drying**
- **Economies in manpower and fuel . . . for lowered costs**

Assure *ACE* DRYING PERFORMANCE on every kind of textile . . . in any operation where heat is an essential element.

Especially developed and constructed for use on:

- **PALMERS**
- **TENTERS**
- **LOOP DRYERS**
- **SINGERS**
- **SLASHERS**
- **THREAD DRYERS**

- **Fully illustrated descriptive circular T-11 on request**

INFRA-RED Division

CARBOMATIC CORPORATION

Pioneers in Radiant Heat Burner Equipment, Gas or Electric

1775 Broadway, New York 19, New York

Also H. W. Butterworth & Sons Co., Philadelphia, Pa.

STAINPRUF PROCESS

"STAINPRUF"
— quality —
TEXTILE FINISHES

Wax emulsion water repellents—*solvent or water soluble*

Durable Plastic finishes—Highly durable water repellency with, or without, Flame, Moth and Mildew-proofing . . . *solvent or water soluble*

Mildew and Flame-proofing compounds . . . *solvent or water soluble*

All may be used with usual existing equipment.

Non-toxic under recommended conditions of use.

These finishes do not change the "hand" of fabrics. They may be applied to practically any material.

Water repellency and flame-proofing for paper.

These finishes meet the requirements of applicable Federal Specifications.

Your inquiry invited

ATLANTIC STAINPRUF CO.
Incorporated

Chatham, New Jersey Phone 4-2500

Sold by distributors throughout the U. S. and Canada.

Persimmon Shuttle

perfected by WATSON-Williams as the answer to the dogwood shortage. Impregnated for long, satisfactory service. Tested under all conditions, on different fabrics, different looms.

WATSON-WILLIAMS
MANUFACTURING CO.
The Shuttle People Millbury, Mass.
SOUTHERN OFFICE: W. F. Daboll, 810 Woodside Bldg., Greenville, S. C. NORTHERN REPRESENTATIVE: G. C. Burbank, 32 Beaconsfield Rd., Worcester, Mass.

this company, idle for some time, has been acquired by Bell Aircraft Corp., Buffalo, N. Y., which will remodel and equip for new branch plant, with Defense Plant Corp., Washington, D. C., Federal agency, providing fund of $2,000,000, for this purpose.

Rock River Cotton Co., Janesville, Wis., has work under way on improvements in mill, for which general contract recently was let to W. R. Hayes, Janesville.

Slater Spinning Co., 335 Barton St., Pawtucket, R. I., has filed notice of company organization to manufacture cotton goods. Abraham Goldstein, 18 Wilcox Ave., Pawtucket, is head.

Springs Cotton Mills, Chester, S. C., have installed five latest model Saco-Lowell cards in the Springsten plant at Chester.

Stark Mills, of **U. S. Rubber Co.,** Hogansville, Ga., have plans under way for expansion in asbestos fabric division, with installation of additional spinning machinery and auxiliary equipment to increase capacity about 50%. Work is scheduled to be carried out at once.

Vernay Brunswick Mills, Brunswick, Me., has had its offer of $145,000 plus market value of stock in process, for Shawmut Mills, Fall River, Mass., accepted by the Shawmut stockholders. Gilbert Vernay stated that operation will continue, with expansion probable. Plant will be known as Vernay Shawmut Mills.

Williams Cotton Co., Rock Hill, S. C., has been incorporated with capital of $10,000, to manufacture a line of cotton goods. E. L. and Robert Y. Williams, are president and treasurer, and vice-president, respectively; both of Rock Hill.

Wool Mill News

American Woolen Co. reports net profit for first six months of 1943 at $4,290,431, compared with net for similar 1942 period of $1,659,401. In the 1943 period there was provision of $14,500,000 for Federal taxes and $1,000,000 for war contingencies. In the 1942 period, tax deduction was $13,100,000 and $1,000,000 for contingencies. Sales for the period were up 8½% over 1942.

Bigelow-Sanford Carpet Co., Thompsonville, Conn., reports net earnings for the first half 1943 of $232,807, compared to $903,150 for the first half of 1942. This company's newest wartime development is a non-shrinkable blanket which is being tested by the U. S. government.

Carwan Spinning Co., Inc., a newly organized concern, has leased about 60,000 sq. ft. in the Royal Mill, West Warwick, R. I., and will shortly manufacture woolen yarns, ultimately employing about 100. The company took over considerable machinery in the plant and is adding new equipment. two-shift operation is planned. A. R. Heritage, of Walpole, Mass., has been named superintendent.

Clyde Woolen Mills, Lanark, Canada, have been sold to David Markle. Employees will be increased from 20 to 50.

W. J. Dickey & Sons, Inc., Oella, Md., have let general contract to Leimbach & Williams, Baltimore, Md., for one-story addition, including improvements in present mill.

Hind & Harrison Plush Co., Clark Mills, N. Y.—Mill of this company has been purchased by Republic Textile Equipment Co., New York, N. Y., and resold to George, Ernest and D. Horvath, 70 West 40th St., New York, who plan to continue operations at mill for same line of output as in past.

Premier Worsted Co., Raleigh, N. C., is a newly established mill in the buildings of the former Caraleigh Mills. The new plant has 4,800 spindles and 48 looms. Herbert Lawton, of New York is president of the new company, and J. M. Stockley is superintendent.

Wanskuck Co., Providence, R. I., has let general contract to Rowley Construction Co., Providence, for one-story addition to mill on Branch Ave.

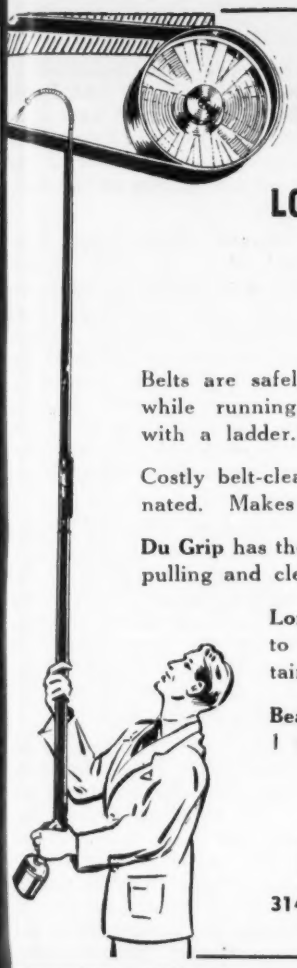
Wyandotte Worsted Co. has purchased a three-story brick mill building on North Main street, Rochester, N. H., formerly occupied by Spaulding Fiber Co., and will use it as a storehouse.

Wytheville (Va.) Woolen Mills, which were destroyed by fire last February, will not be rebuilt.

Rayon & Silk Mill News

American Viscose Corp., Front Royal, Va., has converted all the rayon staple fiber facilities at the local mill to production of high-tenacity staple fiber, Airsco. Work is now under way on a large addition to mill.

Bibb Mfg. Co., Columbus,



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SAFETY & ECONOMY

USE OUR PATENTED

LONGSHOT BELT OILER

AND

DU-GRIP BELT OIL

Belts are safely treated when they need it, while running, in half the time required, with a ladder.

Costly belt-cleaning and static can be eliminated. Makes the old method ridiculous.

Du Grip has the highest degree of preserving, pulling and cleaning qualities.

Longshot is collapsible, and easy to handle. Special lengths obtainable. Standard—8 feet.

Bearing Oilers also available from 1 to 10 feet long.

Literature on request

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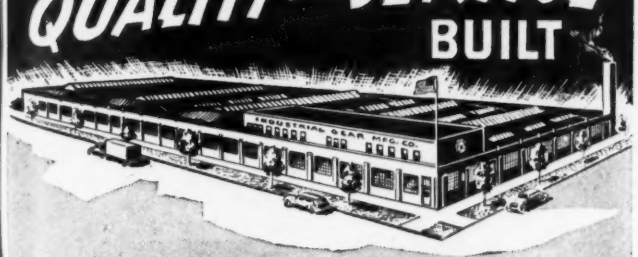

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INTERNAL AND WORM GEARS
ANY MATERIAL—ANY QUANTITY
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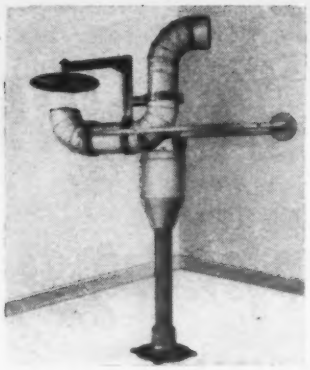

Truslow Blender (patented)

★

SAVE MANPOWER

To keep production moving at top speed with minimum man-power, equip your picker room with Truslow Blenders. Manual blending operations can now be performed mechanically with very little labor.

The Truslow provides really thorough blending of natural and synthetic fibres. The stock is blown through piping to the Blender. It then passes through a rotating arm and is blown up against the vanes of the canopy—making it revolve and distribute the stock in the form of a heavy snowstorm.

Ask us more about it!

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MACHINE COMPANY
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Engineers
GREENVILLE SOUTH CAROLINA

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BURKART-SCHIER CHEMICAL CO.
CHATTANOOGA, TENNESSEE

Ga., plans construction of 160 housing units in Columbus to be used by the operatives of the new unit of the company, which is to be set up at a cost of $1,259,000. This new unit will be used to produce high tenacity cord fabric of rayon for use in the manufacture of synthetic rubber tires.

Canadian Celanese, Ltd., Drummondville, Que., has approved plans for alterations and improvements in mill, with installation of equipment, reported to cost over $300,000, and will proceed with work at once.

Concord (N. C.) Silk Throwing Co., of which A. R. Hoover, Jr., was president, and Hugh M. Grey, manager and treasurer, has liquidated. The company was capitalized at $85,000 and operated 6,500 spindles.

Dawn Fabrics, Inc., Hope Valley, R. I., recently organized with capital of 500 shares, have acquired local Moscow Yarn Mill and will improve and equip for new plant on rayon fabrics. New company is headed by Alfred A. Gobeille, president and general manager of Delite Fabrics, Inc., Westerly, R. I.

Goodyear Decatur Mills, Decatur, Ala., have secured permission from WPB to carry out expansion for manufacture of tire-cord fabrics from high tenacity rayon yarns. Originally WPB specified that project should be at Rockmart, Ga., where an affiliated interest, Goodyear Clearwater Mills, operates plant but on Aug. 13 gave approval to Decatur. Contract has been awarded to A. K. Adams Co., Atlanta. Ga., for new one-story mill, 280 x 520 ft. Entire project is estimated to cost $1,247,000.

Johnson & Hardt, Inc., Paterson, N. J., care of William F. Johnson, 50 Hamilton St., Paterson, attorney and representative, have been organized with capital of 200 shares to manufacture rayon specialties.

McElroy Mills, Inc., Fayetteville, N. C., of which W. R. McElroy was president and R. L. Huffines, Jr., was manager and vice president, has gone out of business. The mill was engaged in the manufacture of spun-rayon fabrics and had 21 looms.

Pembroke (N. H.) Mill has been sold to Atlantic Rayon Corp., Providence, R. I. This mill was formerly part of Suncook Mills recently acquired by Atlantic.

Pioneer Mfg. Co., which will specialize in winding rayon yarn, has been organized in Newmarket, N. H., with Ralph Berry, as president and treasurer, and Thomas Filion, as vice president and secretary. The plant will operate on two daily shifts.

Queen Anne Mills, Ellenboro, N. C., has work well under way making necessary repairs and installing some additional machinery. Following extensive improvements, the mills will be in position to manufacture rayon materials for the Government. These mills were recently taken over by Neisler Bros., Kings Mountain, N. C.

Standard Mfg. Co., North Smithfield, R. I., has been chartered with capital of 100 shares of stock, to operate local mill for manufacture of rayon fabrics, etc. Incorporators include Henry C. Branchaud and D. P. Bourget, 600 South Main St., Woonsocket, R. I.

Synthetic Fabrics, Inc., Bennettsville, S. C., has been chartered with an authorized capital of $2.000 to manufacture and sell rayon, Nylon, cotton and other textile materials. Officers: David D. Carroll, president and treasurer; J. A. Baugh, Jr., vice-president, and Julia Martha Stanley, secretary.

Knitting Mill News

A. & M. Knitting Mills, Inc., New York, N. Y.. care of Max Greenberger, 276 Fifth Ave., New York, attorney and representative, has been organized with capital of 50 shares, and plans operation of local plant.

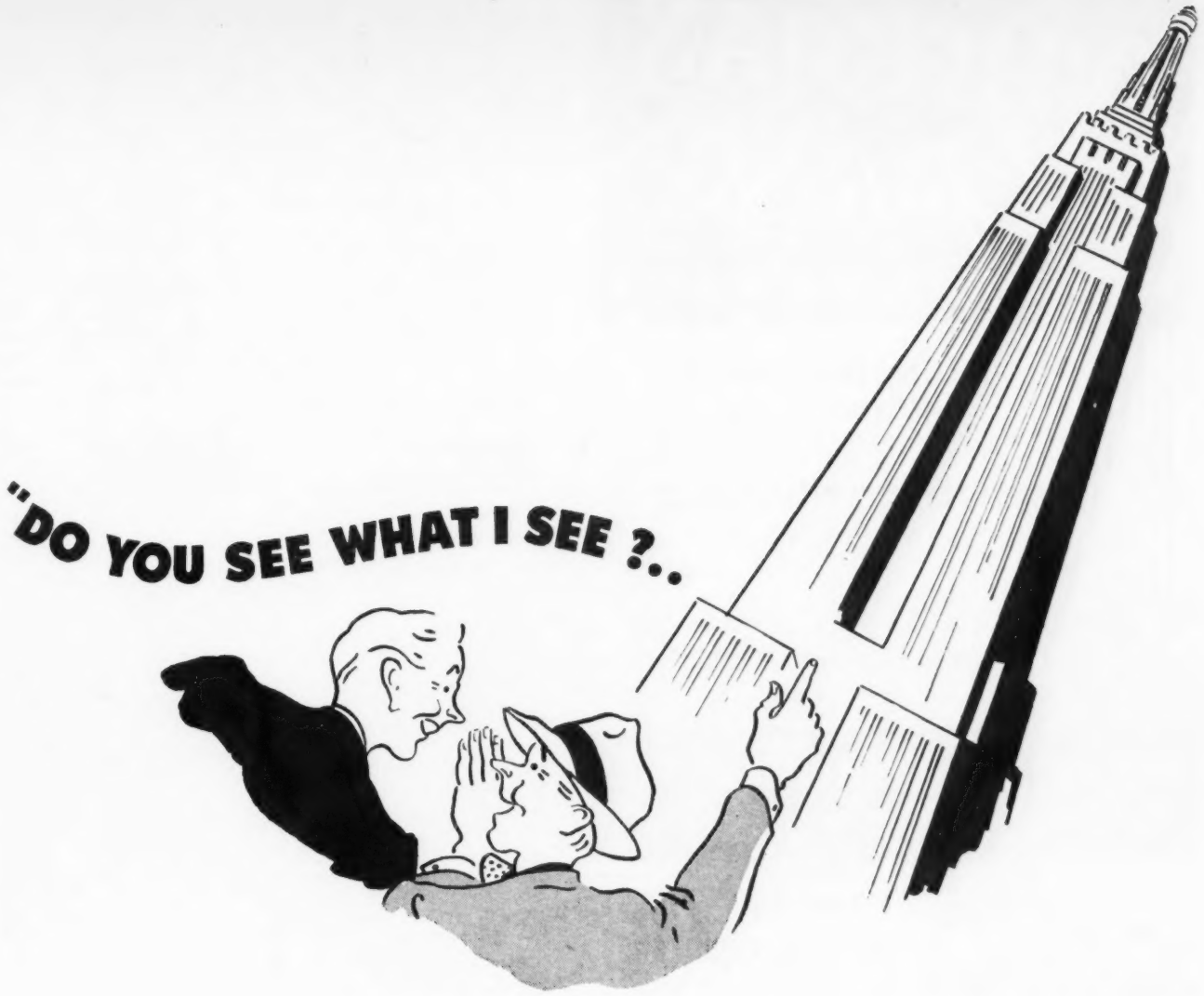
Belding (Mich.) Hosiery Mills have transferred their dyehouse facilities from Chicago to Belding.

Dixie Hosiery Mills, Mount Gilead, N. C., has plans for rebuilding boiler house at mill, recently damaged by fire.

James Knitting Mills, Hickory, N. C., newly organized, has gotten into production. The owners are: A. M. Jones and C. Frank Jones, Mount Pleasant, N. C., and F. W. Crews, Hickory.

Julius Kayser & Co., Brooklyn, N. Y., have finally concluded negotiations for acquisition of Nazareth Waist Co., Nazareth, Pa.. and will operate plant as a branch mill in future.

Kenosha Full-Fashioned Hosiery Mills, Inc., Kenosha, Wis., are planning establishment of new branch mill for Cownie Division at Fort Atkin-



that's Scott & Williams up there in the Empire State"

Yes sir! It's Scott & Williams all right. We've just moved into our new quarters here on the 18th floor... and we offer you a hearty invitation to come up and pay us a visit.

Have you seen *all* models of S & W's knitting machines in action? The complete line is here on display—all set up and running with the latest improvements and attachments.

Would you like to see what these machines can do in the way of turning out a smart variety of hosiery styles and patterns? Here you can see a full range of samples arranged in modern display cases with special lighting effects to highlight their features.

Or perhaps you would like to drop in to discuss your special knitting and production problems. You'll find us ready and willing to help you in planning new designs and knitting techniques to meet the changing demands. We'll be glad, too, to give you full cooperation in planning your postwar production.

The Empire State is a growing center of activity in the hosiery industry. You'll find it easy to get to from any part of town... and just a stone's throw from both the Penn Station and the Grand Central Terminal. Scott & Williams looks forward to seeing you here—early and often.

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WHITMAN YARNS
WORSTED • COTTON • SPUN RAYON
ARLINGTON MILLS
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"YOU CAN COUNT ON WAK COUNTERS"
They are
RUGGED
ACCURATE
DEPENDABLE
We build single, double and triple pick counters; yardage, rotary, ratchet and special counters.
Write — Phone — Wire
WAK INDUSTRIES
CHARLOTTE, N. C.

Simplified DESIGN
Flexible POWER
Better EVAPORATION
More sensitive CONTROL
SOUTHWORTH HUMIDIFIER
Experienced textile men who know the merits of previous models of Southworth Humidifiers have found improvements in Model D that make it even more reliable and efficient.
Extreme sensitivity of control, and an "airplane propeller" type fan for greater evaporation, are two outstanding features.
NOTE
This advertisement is to remind you to include Southworth Humidifiers in your after-the-war plans. Frankly, we are 100% on war work and cannot make humidifiers at the present time.
THE SOUTHWORTH MACHINE CO.
PORTLAND MAINE

son, Wis., where one-story industrial building is being acquired.

Mock - Judson - Voehringer Co., Greensboro, N. C., has sold its Siler City (N. C.) branch for $50,000 to J. Edward Anderson and A. T. Quantz, of Timmonsville, S. C., and Phillip Wick, Irvington, N. Y. Machinery was previously moved to Greensboro. The new owners have not yet revealed just what type of product will be manufactured.

Plaza Knitting Mills Corp., New York, N. Y., care of Albert A. Weinstein, 450 Seventh Ave., attorney and representative, recently chartered with capital of 200 shares, plans early operation of local mill.

Robinson Hosiery Mill, Catawba, N. C., has recently added 16 160-needle, 40 200-needle, and 20 220-needle half-hose machines. H. F. Robinson is owner.

Weldon (N. C.) Knitting Mills, Inc., is the reorganized Perfection Mills, Inc., The mill's 25 circular knitting machines have been idle. O. G. Morehead is president and superintendent, and Sloan E. Shirley is secretary and treasurer. Mr. Morehead recently sold his interest in St. Pauls (N. C.) Textile Corp., to Burlington Mills Corp., Greensboro, N. C. The Weldon plant has 5,736 spindles on carded cotton yarns.

Winona Knitting Mills, Inc., Cleveland, Ohio, care of Rocker & Schwartz, Guardian Building, attorneys and representatives, have been organized with capital of $10,000, to operate a local mill.

Processing Plant News

American Textile Processing Corp.; Paterson, N. J., has dissolved its corporate existence and continues as a partnership.

American Viscose Corp. has appointed six additional companies as finisher licensees under the "Crown" Tested Plan. The companies are All Tex Finishing Co., New York, N. Y.; Beacon Piece Dyeing & Finishing Co., Beacon, N. Y.; Bradford Dyeing Association (U.S.A.), Westerly, R. I.; Capitol Piece Dye Works, Garnerville, N. Y.; North Carolina Fabrics Corp., Salisbury, N. C.; and Pleasant Valley (N. Y.) Finishing Co.

Cornell Dye Works, Inc., New York, N. Y., care of Bernard Indelman, 1475 Broadway, attorney and representative, has been incorporated with capital of 200 shares of stock, no par value, to operate a textile dye, print and finish works.

Freydberg Bros.-Strauss, Inc., Stamford, Conn., are installing 100 new machines of an improved type for plastic coating of cotton and rayon yarns. The firm's plastic coated yarns are used largely for window-screen material woven on standard wire looms; also for handbags, shoes, belts, suspenders, drapery and upholstery goods.

Lyonne Screen Print Corp., New York, N. Y., care of Chester A. Lessler, 58 West 40th. St., attorney and representative, recently organized with capital of 200 shares, plans operation of local textile printing and finishing mill.

Tekasizing Corp. of America, Paterson, N. J., has been formed to manufacture and process rayon fabrics. Alphonse & Van Houten of Glen Rock, N. J. is interested.

Textile Coating Corp., New York, N. Y., care of Hecht & Hadfield, 30 Broadway, New York, attorneys and representatives, was recently chartered.

Wallmar Screen Printing Corp., Maspeth, L. I., recently organized, has leased space in local Atlas Terminal building, totaling over 20,000 sq. ft. floor area, and will occupy for new textile printing and finishing mill.

Miscellaneous Mill News

Fraser Valley Fiber Flax Assn., New Westminster, B. C., has begun erection of new one-story processing mill on Campbell River Rd., for which general contract recently was let to Ward & Son, Ltd., New Westminster. Cost estimated about $90,000, with equipment.

Northwest Flax Industries, Inc., Winona, Minn., John A. Johnson, president, recently organized, will build new one-story mill for processing flax straw for use in rayon and cellulose production.

Jefferson, Ore. A new $80,000 flax-processing plant will be erected immediately at Jefferson for the Santiam Flax Growers' Association, of which Alfred E. Lentschner is plant manager.

Twin City Textile Mills, St. Paul, Minn., mill waste, are making alterations and improvements in mill, for which contract was recently awarded to Benjamin Spector, St. Paul.

In Rain or Snow or Muggy Heat

Wherever they are — wherever they may go — our fighting men have the constant protection of fabrics finished to meet the needs of global war. With experience born of peacetime service but with a resourcefulness geared to the needs of war, Arkansas takes pride in producing at top speed for textile processing and finishing plants whose fabrics must meet rigid government specifications.

FUNGICIDES for all types of Government Fabrics

Highly Efficient — Non-Toxic — Non-Irritating

FUNGICIDE M: a single product combining a mildew inhibitor and water repellent for producing a mildewproof water repellent finish on cotton in one operation.

FUNGICIDE P. G.: an anti-mildew agent for mildewproofing cotton by the two bath process.

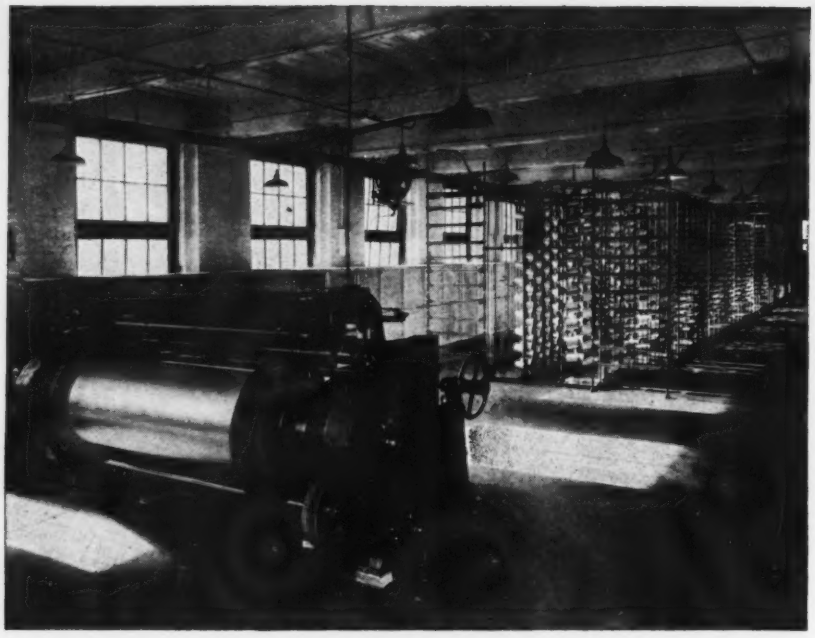
FUNGICIDE G: used in conjunction with water repellents in a one bath treatment to mildewproof cottons and impart a water repellent finish.

FUNGICIDE A: for cloth coating processes — dissolved directly in the resin solution.

FUNGICIDE P: made expressly for use in the pigment impregnation process.

ARKANSAS CO. INC., NEWARK, N. J.

Established over 38 years



High-Speed Spindle Driven Warper with Magazine Cone Creel and Electrical Eyeboard stop-motion for Rayon.

PUT THESE *Modern* MACHINES TO W

Repeat orders for complete installations of COCKER HIGH-SPEED WARPERS and Creels, and COCKER HIGH-SPEED SLASHERS illustrated above, prove that better warps are made efficiently and economically on COCKER WARP PREPARATION EQUIPMENT.

[***Investigate the many desirable Cocker Features not found on other Warp Preparation Equipment.***]

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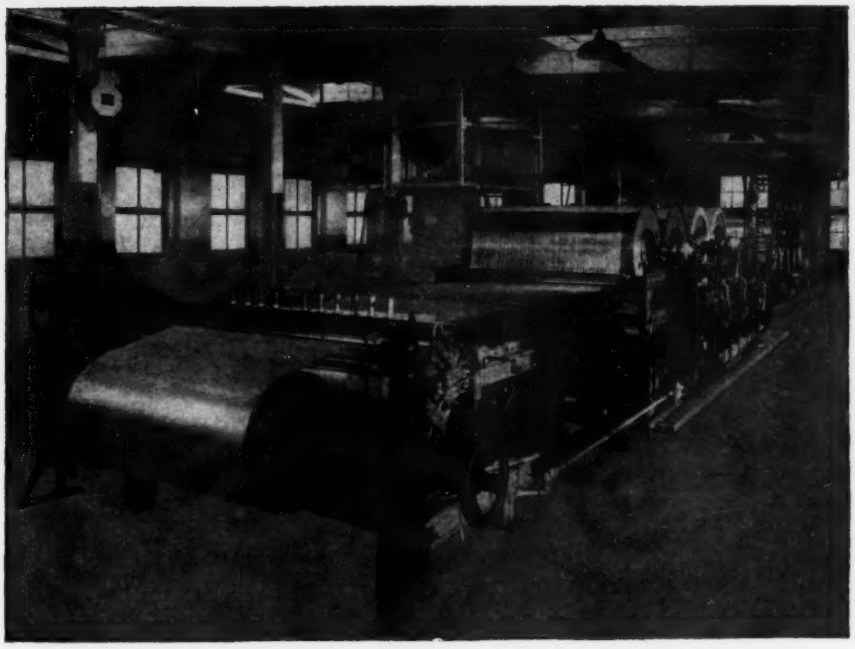
Builders of Complete Warp Preparation Equipment for Rayon,



Cocker Seven Cylinder High-Speed Rayon Slasher.

O WORK IN *Your* MILL

You Get All These Features on

COCKER WARP PREPARATION EQUIPMENT

—On the High-Speed Warpers and Creels

Yarn Tension secured by dead weight . . . Chrome-plated washers . . . quick acting positive electrical eyeboard stop-motion . . . magnetic brake . . . creel arrangement to permit operator to tie in reserve cones quickly and easily . . . horizontal type magazine . . . completely enclosed drive.

—On the High-Speed Rayon Slasher

Stainless steel cylinders with rotary packless joints . . . Graduated drive permitting speed changes without overrun on beams or strain on yarn . . . Patented automatic friction control . . . Finger-tip tension control . . . Syphon condensate removal with individual traps on each cylinder . . . Instant speed changes to 90 yards per minute . . . Ball bearings on all moving parts . . . Heavy vibration-eliminating frames . . . Counter clocks for instant stretch calculation . . . Cut markers . . . Cut Marker Indicators . . . Speed Tachometers . . . Combs and comb adjustments . . . Motor and steam fittings . . . plus many other important features.

nUNDRY CO., Gastonia, N. C.

foyon, Cotton and Other Natural and Synthetic Yarns

NEW MODINAL* DN

For scouring and dyeing wool and worsted piece goods

Every minute you save these days means bigger production. And Modinal DN, the extra-strength detergent, saves time all along the line, from scour to dye bath. Here's how it helps you:

In Scouring, Modinal DN will:

- Reduce rinsing time up to 50%
- Eliminate soap curds and soapy odors
- Save steam, as colder water may be used for rinsing

In Dyeing, Modinal DN will:

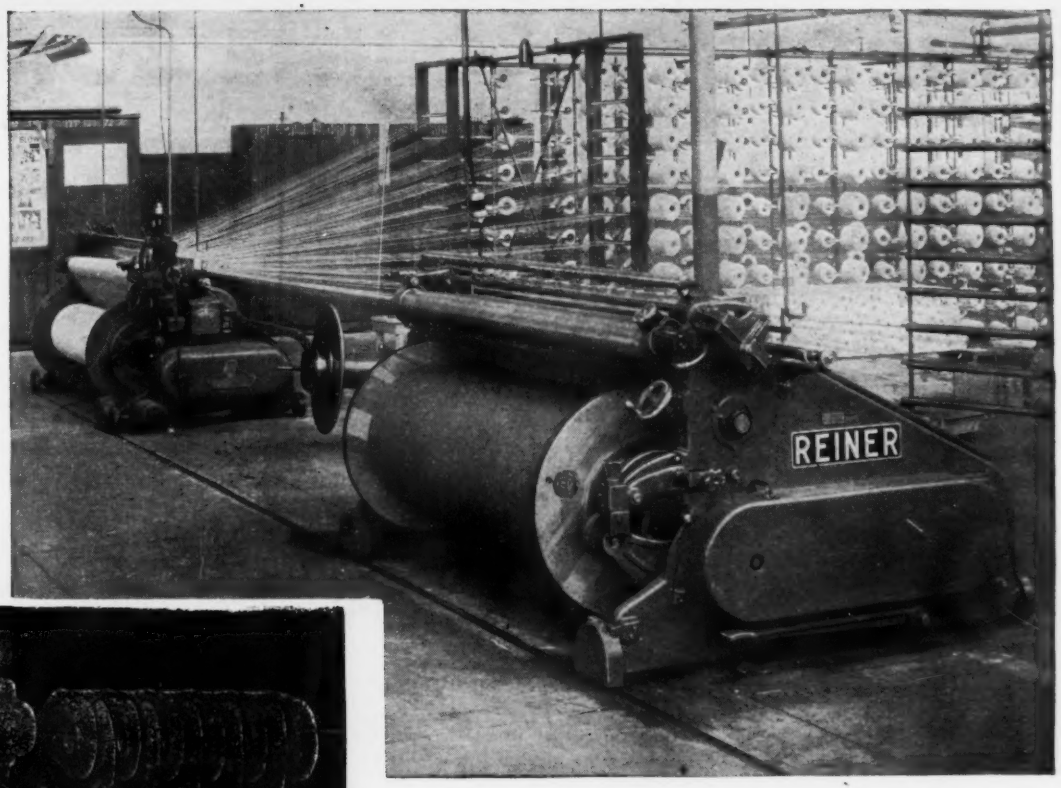
- Improve penetration and leveling
- Eliminate streaks and blotches
- Give uniform results

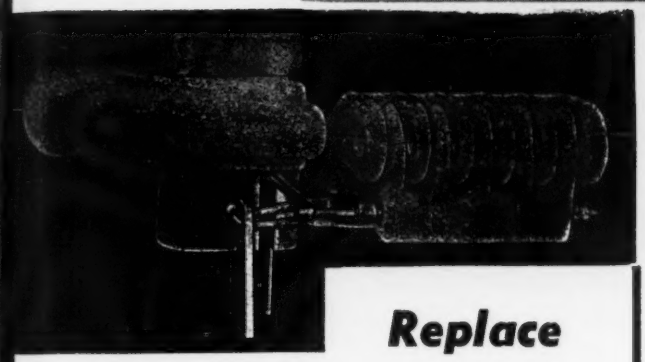
GET HELP from our experienced men on technical production problems. Gardinol Corporation, General Offices, Wilmington, Delaware. Sales Agents: Procter & Gamble, Cincinnati, Ohio.—E. I. du Pont de Nemours & Co. (Inc.), Fine Chemicals Division, Wilmington, Delaware.

*"MODINAL" is the trade-mark used by the Gardinol Corporation to designate a group of its fatty alcohol sulfates.

MODINAL DN Fatty Alcohol Sulfates

Two REINER Products for More Efficient Production at Lower Cost





Replace Your Present Tensions with the REINER COUNTER-BALANCED TENSION PAT.

The only balanced thread tension on the market. A guaranteed uniform tension is obtained regardless of the thread used or the speed employed. Over 20,000 already in use in woolen, rayon and cotton mills in all parts of the country. Send for trial order or write for full information.

REINER HIGH SPEED WARPER *and* CREEL

The most advanced warper on the market for beaming filament rayon, spun rayon, cotton, wool, worsted linen, etc.

WARPING SPEED CONTROL. Constant warping speed automatically adjusted without clutch or mechanical drives. In addition, a stepless speed range permits speeds of from 50 to 1000 yards per minute.

EXTRA slow, sensitive starting speed—independent of warping speeds.

DIRECT BEAM DRIVE permits adjustable and constant pressure of the yarn roller.

We are still building Warpers and Creels for the Textile Industries. "MACHINERY" can be obtained against Priority Rating.

ROBERT REINER INCORPORATED
WEEHAWKEN, NEW JERSEY

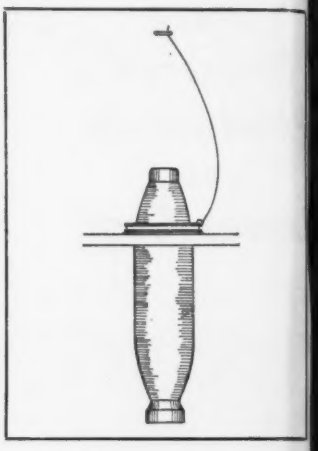
Ten minutes from Times Square Via Lincoln Tunnel

ABBOTT MACHINE COMPANY

WILTON, N. H.

Southern Representative, L. S. Ligon, Greenville, S. C.

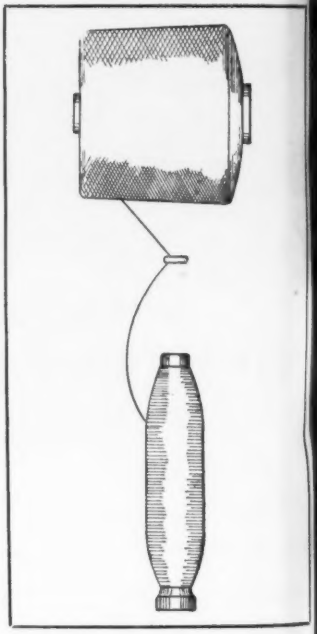
WE RECOMMEND:



SPIN ALL YARNS ON TO LARGE WARP BOBBINS UP TO 8 OZ. DEPENDING ON COUNT

SAVE DOFFING AND INCREASE SPINDLE EFFICIENCY

WIND AND SLUB TO LARGE 4° CONES AT 600 TO 750 YARDS PER MINUTE



900 TO 1000 NET BOBBINS PER HOUR PER OPERATOR

USING:-

ABBOTT TRAVELING SPINDLE
AUTOMATIC CONE WINDER

FROM THESE CONES:-

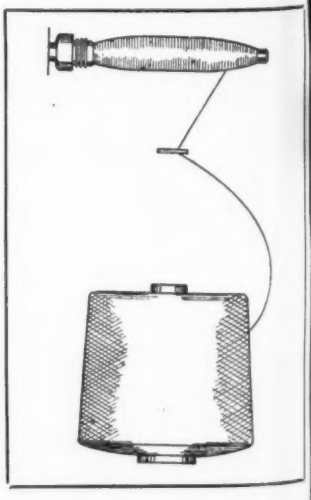
WARP AT HIGH SPEED
FROM A MAGAZINE
CONE CREEL

OR

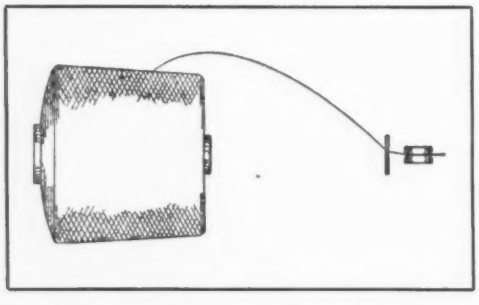
WIND LOOM QUILLS

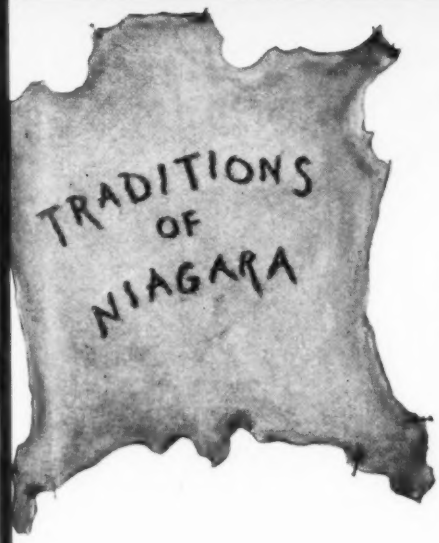
USING:-

ABBOTT
AUTOMATIC
QUILLER



1000 TO 2000 BOBBINS PER HOUR PER OPERATOR





"The Red Man's Fact.."

For centuries before the discovery of America, Niagara Falls was the crossroads of Indian trade routes and the subject of many primitive myths and legends. Later these came to be called "the red man's fact and the white man's fancy."

Today, Niagara is the hub of vastly greater trade routes and the source of power more fantastic in fact than anything ever dreamed in the red man's fancy. For it is the center of a huge electro-chemical industry from which America derives much of its strength.

As an integral part of this industry Niagara Alkali has upheld the traditions of Niagara by pioneering chemical products and methods of applying them to new uses. And now that America is at war, this pioneering activity is proving its value in many concrete ways in the production and processing of vital supplies to the armed forces.

An Essential Part Of America's Great Chemical Enterprise

CAUSTIC POTASH • CAUSTIC SODA • PARADICHLOROBENZENE • CARBONATE OF POTASH • LIQUID CHLORINE

ARMY E NAVY

Niagara ALKALI COMPANY

60 EAST 42nd STREET, NEW YORK 17, N. Y.

PERKINS
HOLYOKE
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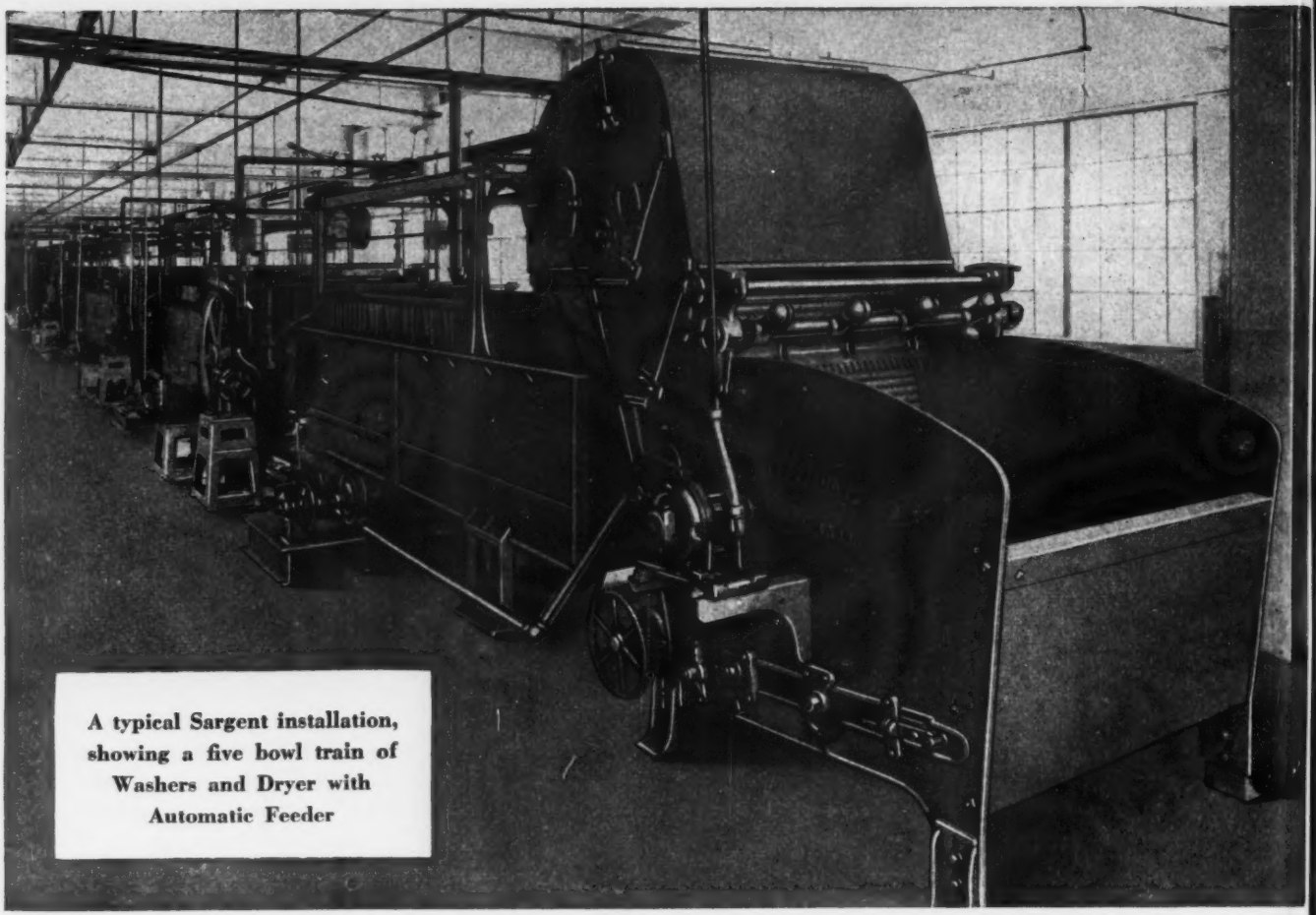
There is no substitute for Perkins Quality

B. F. PERKINS & SON, Inc.
HOLYOKE, MASS., U.S.A.
LARGEST MANUFACTURERS OF CALENDER ROLLS IN THE WORLD

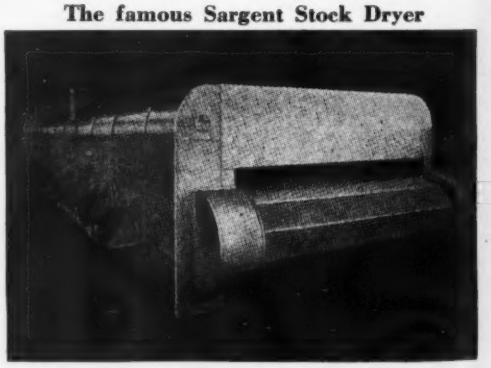


A typical Sargent installation, showing a five bowl train of Washers and Dryer with Automatic Feeder

Ushering in the NEW in "New Era"

THAT is just what the Textile Industry is experiencing when the latest types of SARGENT Preparatory Machinery are installed, because, wherever this is done, there is more *efficiency,* higher *speed,* less *waste* motion, larger *production* and greater *profits* • The Industry absolutely *needs* the *newest* SARGENT Units in order to produce the proper quality and fill the orders *on time* • For more than 88 years SARGENT has received unending recognition as specialists in Wool Scouring, Stock Drying and Picking Equipment, and its numerous fast-working Units are in daily operation in thousands of textile plants throughout America and foreign countries • There are various illustrated Bulletins available which visualize all the Sargent products, and all you have to do is *write for them!*

The famous Sargent Stock Dryer



C. G. SARGENT'S SONS CORPORATION
Graniteville, Massachusetts, U. S. A.

Training YOUR sights on the future?

WYANDOTTE, servicing half a hundred industries with basic chemicals, plays its part in science's ceaseless striving for the betterment of mankind. For in peace or in war, the good technological man is and always has been what the American fighting man is today — an *all-out* fighter for a better world.

In the van of this perpetual advancement of humanity . . . through blueprint, test tube, laboratory, and never-ending research . . . in peace, and now in war for the better peace to come . . . Wyandotte technicians have helped play an important role. Working in the present, they train their sights *on the future.*

Whether your industrial production has been regeared to war demands, or continues along pre-war established lines, problems inevitably arise . . . problems whose solutions may be bound up with a speedier peace, more vital post-war living. To help you in any way it can, Wyandotte freely offers the services of its experts. The fruits of their background and specialized training are yours . . . without obligation.

• *Wyandotte Chemicals Corporation consolidates the resources and facilities of Michigan Alkali Company and The J. B. Ford Company to better serve the nation's war and post-war needs.*

Wyandotte

OFFICES IN PRINCIPAL CITIES

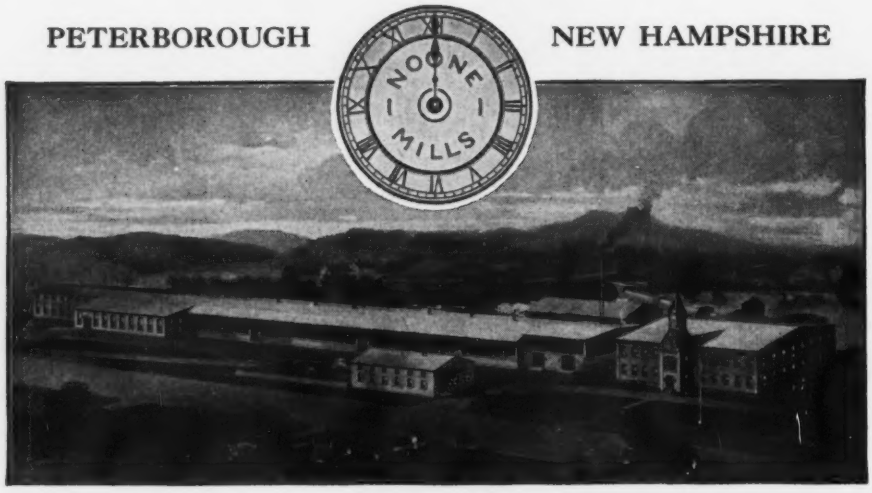
WYANDOTTE CHEMICALS CORPORATION • MICHIGAN ALKALI DIVISION • WYANDOTTE, MICHIGAN

SODA ASH • CAUSTIC SODA • CHLORINE • BICARBONATE OF SODA • CALCIUM CARBONATE • CALCIUM CHLORIDE • DRY ICE

The Joseph Noone's Sons Company

A. Erland Goyette, Owner

PETERBOROUGH NEW HAMPSHIRE



Established 1831

Noone's Standard Roller Cloths

Insist on Noone's Standard Roller Cloths for your Spinning Rolls. Noone's have been Standard since 1831.

Results and costs are what count most.

Use Noone's Roller Cloth and be assured of a Strong Round uniform yarn, the best obtainable. Eventual cost, less than any other covering.

Good spinning can always be obtained when Noone's Roller Cloth is used, as it is the properly built Cloth,—has the correct cushion and consistency, and uniform gauge.

Noone's is best by test.

Many materials have been used for Spinning Roll Covering in years past, but have eventually been discarded in favor of the dependable Woolen Roller Cloth and Leather.

Do not be misled, put your faith in the good Old American Products: Noone's Roller Cloth and Leather. If in doubt, allow us to demonstrate the superiority of our Roller Cloth and a leather cot.

Use Noone's Roller Cloths, Noone's Slasher Cloths, Noone's Clearer Cloths.

Noone's are the Pioneers in Mechanical Cloth Manufacturing in America.

WILLIAM R. NOONE & COMPANY

Selling Agents

ARNOLD T. MALONE, Manager

105 Washington Street Boston, Mass

CEGLIN*

FINISH *for* TEXTILES

SYLVANIA

Ceglin finished work fabrics have the qualities which deliver "extra wear" satisfaction! This perfect cellulose finish increases fabric strength and durability . . . stabilizes shrinkage and stretching . . . increases resistance to slippage, distortion and abrasion . . . and resists repeated laundering. Fabrics that are Ceglin finished retain that appearance of newness and look smart, longer.

Ceglin, functioning unusually well with water-repellents and mildew-proofing agents is economically applied either in the usual manner, or before kier boiling.

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AQUA-SEC CORPORATION
1450 Broadway, N. Y. City 18, N. Y.
ARIDYE CORPORATION
Fair Lawn, N. J.
The AULT & WIBORG Co., of CANADA, Ltd.
Toronto and Montreal

SYLVANIA INDUSTRIAL CORPORATION

General Sales Office: 122 East 42nd Street, New York 17, N. Y.
Works and Principal Office: Fredericksburg, Virginia

*TRADEMARK REG. U.S. PAT. OFF.

STALEY'S COMPLETE LINE OF TEXTILE STARCHES

A-1 QUALITY-UNIFORMITY DEPENDABILITY

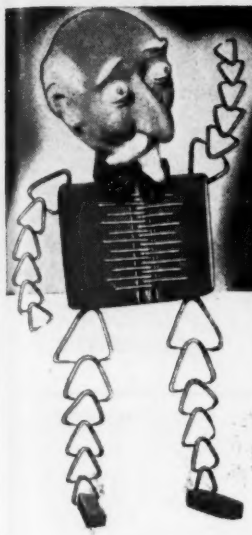
LABORATORY CONTROLLED FOR EVERY TEXTILE NEED — MORE THAN 30 YEARS OF STARCH MAKING EXPERIENCE

A. E. STALEY MANUFACTURING COMPANY

DECATUR — ILLINOIS

Staley's CORN AND SOY BEAN PRODUCTS

ATLANTA, NEW YORK CITY, SPARTANBURG, CHICAGO, BOSTON



30% Savings BY USING Clipper BELT LACING EQUIPMENT

The Timken Roller Bearing Co. of Canton, Ohio, has effected a saving of about 30% in consumption of belt hooks by using Clipper Belt Hooks, Clipper Lubrihide Pins and Clipper Speed Lacers.

You, too, can make worth-while savings by using ALL THREE Clipper products.

Remember, only Clipper Belt Hooks are packed with the long wearing **Lubrihide Pins.**

The **Clipper No. 9 Portable Lacer** develops pressures up to 16 tons. With such pressure, hook legs can be embedded flush with the surface of any kind of belt and points clinched.

The scientific action of the jaws forms a perfect line of well rounded loops permitting the use of maximum diameter **Lubrihide Pin,** also providing equal distribution of pulling strain on every hook. A belt joint so made will outlast by two to three times one made with an old-style portable lacer.

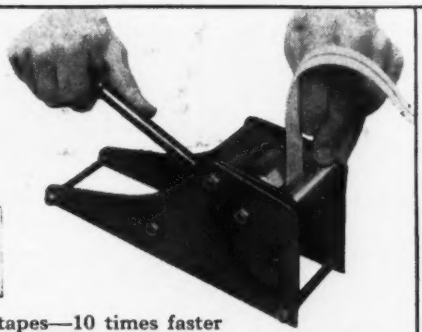
We suggest that you check YOUR belt lacing situation. Send for folder describing the powerful Clipper No. 9 Portable Lacer and other Clipper products. Phone your Mill Supply Jobber for a demonstration!

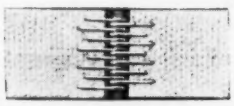
Clipper No. 9 Portable laces belts up to 6 inches wide in one quick, easy operation.

Scientific action of Jaws forms

a perfect loop for connecting pins.

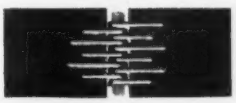
CLIPPER SPINDLE TAPE LACING EQUIPMENT





You can lace spindle tapes—10 times faster than stitching — with Clipper No. 25 Spindle Tape Hooks. The spinning frame is shut down only long enough to place the new tape on the pulleys and join the ends with the connecting pin — a short, easy operation. Tapes run true—last longer—run smoother—require less tension. VIBRATION is ELIMINATED.

CLIPPER CONDENSER TAPE LACING EQUIPMENT



Condenser tapes are laced with Clipper No. 25 Condenser Tape Hooks. The joint is as flexible as the tape itself. Clipper Laced Condenser Tapes can be installed in a fraction of the time required for endless tapes. Tape may be purchased in the roll at considerable saving, and cut to length. WRITE FOR INFORMATION.

CLIPPER BELT LACER COMPANY GRAND RAPIDS, MICHIGAN, U. S. A.

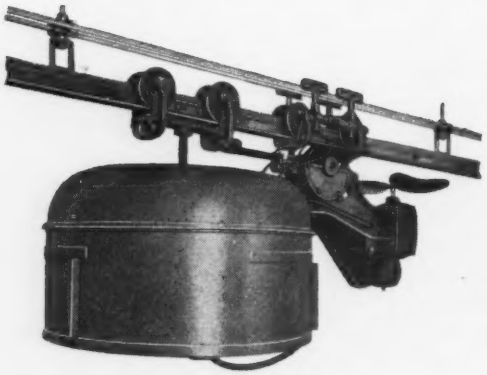
Clipper

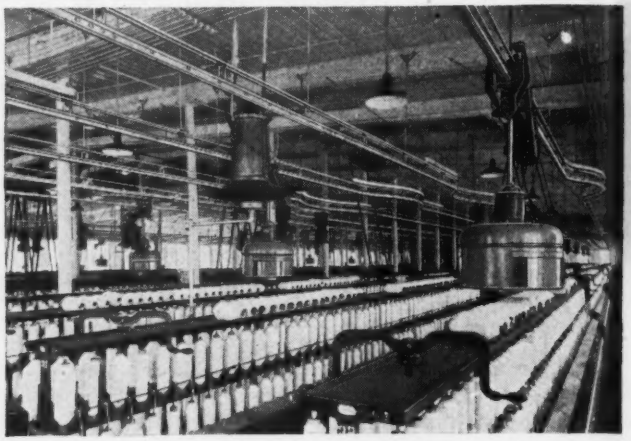
SPEED VICTORY by NOT INTERRUPTING PRODUCTION

BELT LACING EQUIPMENT

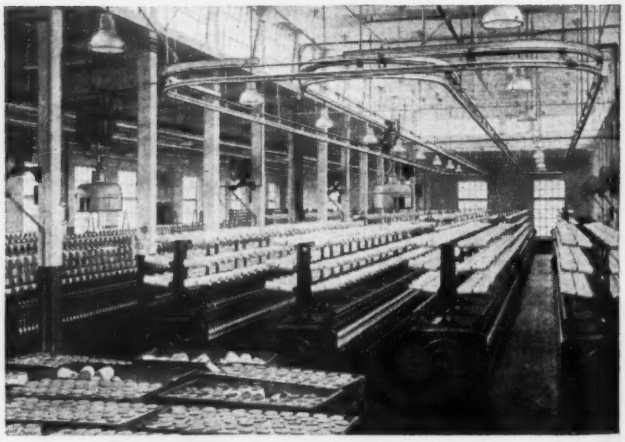
CYCLONIC CLEANING...

KEEPS MACHINES GOING AT *Top Speed*

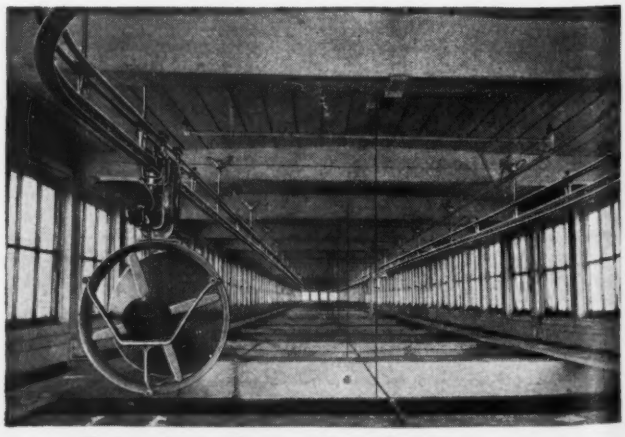




Automatic cleaners reduce ends down on long draft spinning machines.



Swirling columns of air circulate around cones to prevent lint accumulation.



High velocity fan travels within the monitor keeping this section clean.

THE combination of American MonoRail MonoTractor and a scientifically designed blower unit solves the problem of lint accumulation on long draft spinning, high-speed twisting, winding and warping machinery. This automatic cleaning, a swirling column of air, keeps machines producing full time, enables operators to increase their output and reduces the number of gouts or bunches in the yarn.

Let an American MonoRail Engineer tell you the complete story of Controlled Cyclonic Cleaning. He can show you how cleaning is done better, quicker and more economically with American MonoRail Automatic Overhead Cleaners.

THE AMERICAN MONORAIL CO.

13108 Athens Avenue Cleveland 7, Ohio

★

CAN YOUR PUMPS PASS THIS "1000 GALLON" TEST?

1000 GALLONS

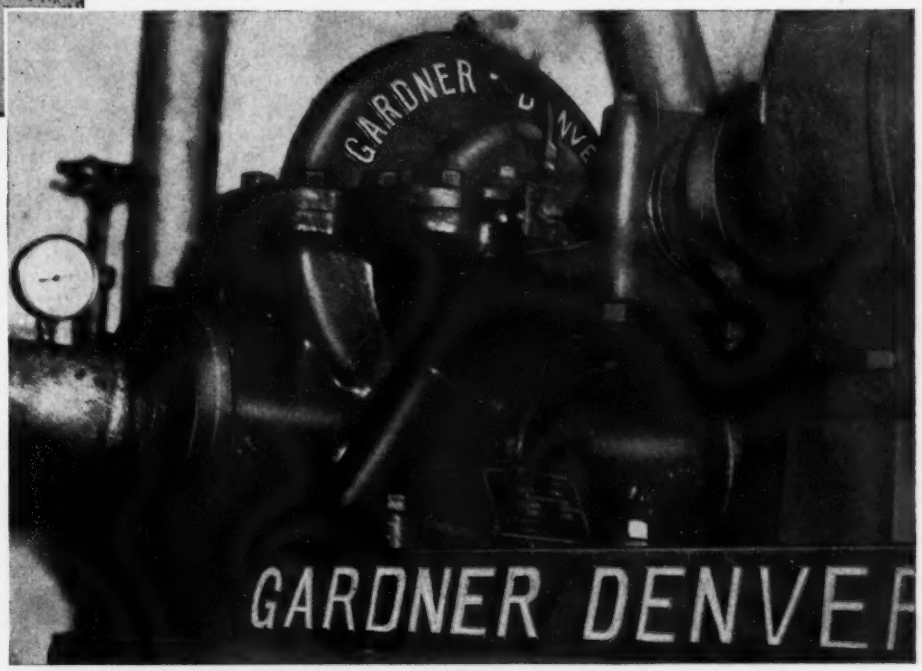
Many an old, outmoded centrifugal is eating its head off in costs—unknown to its owners. Gardner-Denver improvements in pump design have made such pumps obsolete—for the modern hydraulic and mechanical advantages of Gardner-Denver pumps make possible substantial reduction in the cost of pumping every 1000 gallons.

For further information on extra pumping efficiencies to meet the needs of today and tomorrow, write Gardner-Denver Company, Quincy, Illinois; Atlanta, Ga.; Birmingham, Ala.; Boston, Mass.; Hazelton, Pa.; Knoxville, Tenn.; Washington, D. C.; New York, N. Y.; Philadelphia, Penn.; Pittsburgh, Penn.

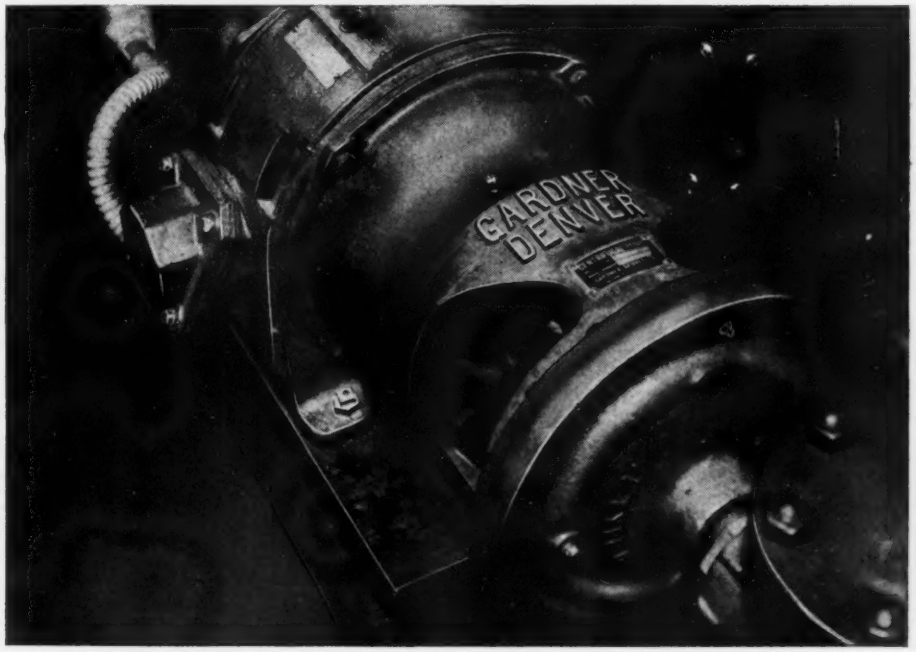
Since 1859

GARDNER-DENVER

Designed for large capacities and heads up to 350 feet, Gardner-Denver Horizontally Split Case, Double-Suction Centrifugal Pumps are ruggedly constructed for heavy duty service.

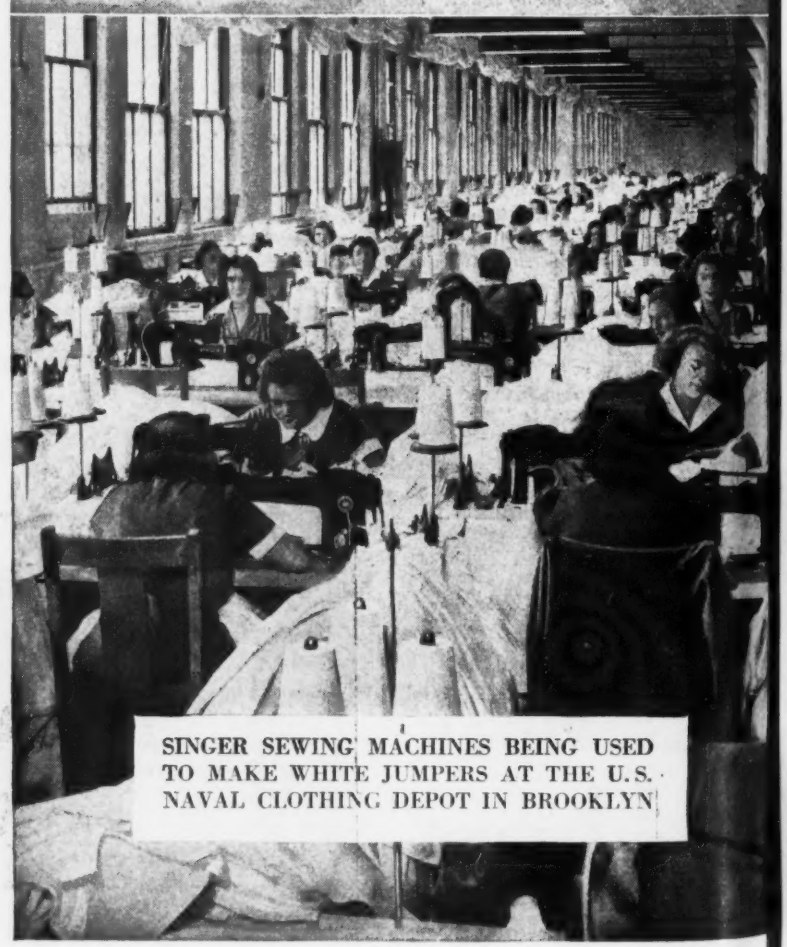


Completely assembled and ready for installation in any position on floor, wall or ceiling, Gardner-Denver Close-Coupled Centrifugal Pumps form a compact pumping unit for capacities from 30 to 1200 gallons per minute.



IN AFRICA OR BROOKLYN...

BUSY TAILOR WORKS ON A UNIFORM SOMEWHERE ON THE AFRICAN DESERT
British Official Photo. Crown Copyright reserved



SINGER SEWING MACHINES BEING USED TO MAKE WHITE JUMPERS AT THE U.S. NAVAL CLOTHING DEPOT IN BROOKLYN

On the African desert, in Brooklyn, and many other parts of the world, Singer sewing machines are playing a vital part in clothing and equipping men for all branches of the armed forces.

Singer sewing machines formerly available for making hundreds of different things for civilian use are now sewing parachutes, gas masks, uniforms, tents, gun covers, shoes, powder bags, fur lined helmets, and many, many other articles needed to bring speedy victory to US. And if, like many others, you are having trouble getting Singer sewing machines, remember that Uncle Sam is our first customer, and his needs must be satisfied first.

SINGER

SEWING MACHINE COMPANY
Manufacturing Trade Department
149 Broadway New York, N. Y.

Branches in all principal cities

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In the Groove
THE DIFFERENCE SHOWS

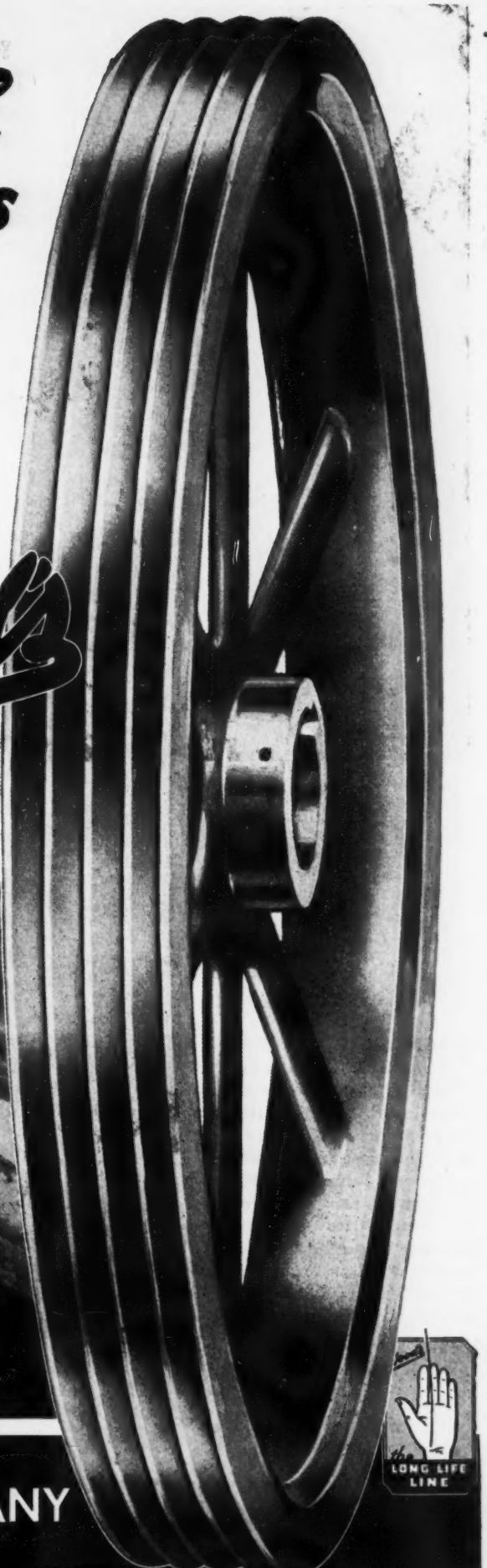
Wood's Sheaves are engineered to provide for a snug fit and maximum grip by the V-Belts. Grooves are precision machined, uniformly spaced and absolutely true, with side walls at proper angles. Then, the belts being full moulded, flexible and resilient, perfectly match the grooves so that the harder the pull the greater the wedging action of the belts in the grooves . . . and the higher the percentage of power transmitted. In fact, efficiencies often run as high as 98%.

Let us give you full details about our line of nearly 2800 Wood's V-Belt Drives ranging from ¼ H.P. to 100 H.P. with a wide selection of center distances for each. Our 64 page V-Belt Drive Catalog will be sent on request . . . or ask your nearest Wood's Distributor about them.

EVERYTHING IN TRANSMISSION
Bearings · Collars · Clutches · Couplings
Contactors · Hangers · Pillow Blocks · Pulleys
V-Belt Sheaves and Complete Drives.

Wood's

V-BELT DRIVES



the LONG LIFE LINE

T. B. WOOD'S SONS COMPANY
CHAMBERSBURG, PA.

BRANCHES: 387-391 ATLANTIC AVE., BOSTON, MASS. · 94 PLANE ST., NEWARK, N. J. · 425 FIRST AVE., PITTSBURGH, PA.

Planning now for Postwar Profit?

HIGH-SPEED "WHIRLWIND" EXTRACTORS, 1943 model, whirl out the work in as little as half the usual time. Their exceptionally high basket speed, speed in acceleration and unloading, make possible extra margins of production which are life-savers to mills unable to add facilities to meet increased demands. And the 194? model will top this performance.

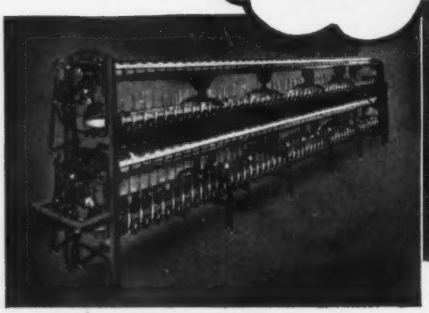
FLETCHER LOOMS, like that below, today are speeding production of millions of yards of goods vital to war; withstanding easily the strains of the 168-hour week. Tomorrow, Fletcher looms on peacetime jobs will be more than equal to the task of meeting competition with quantity production of quality products at low costs.

"Get the Facts - and you'll get a FLETCHER!"

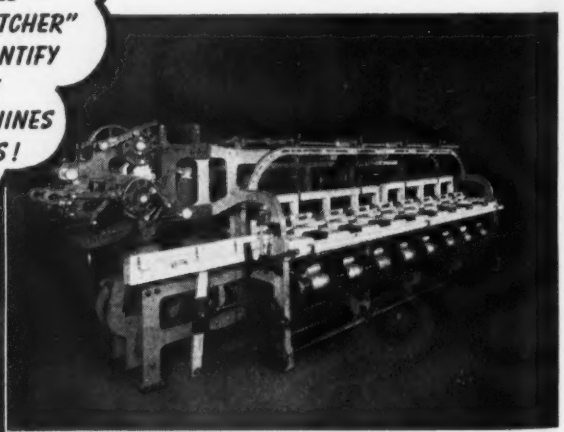
WHEN ONCE AGAIN TEXTILE EQUIPMENT IS AVAILABLE FREELY TO ALL— THE NAME "FLETCHER" STILL WILL IDENTIFY THE FINEST HI-SPEED MACHINES OF THEIR TYPES!

CONSTANTLY, all Fletcher machines are reviewed by Fletcher development engineers, alert to possibilities for improvement. This practice has been responsible for the advanced design of Fletcher equipment past and present . . . and, future indications are for important new features and even greater Fletcher speeds and efficiencies in production.

So we say: *For the newest, keep in touch with Fletcher!*



FLETCHER "APEX" TWISTER, a major aid to war production now, may be the answer to your postwar problem. Keep an eye on developments here.



WE SUGGEST *that you write, NOW, to have your name put on our mailing list of those to receive the up-to-the-minute information about the newest in textile equipment, in preparation for V-day to come. Just write us on your letterhead; there's no obligation.*

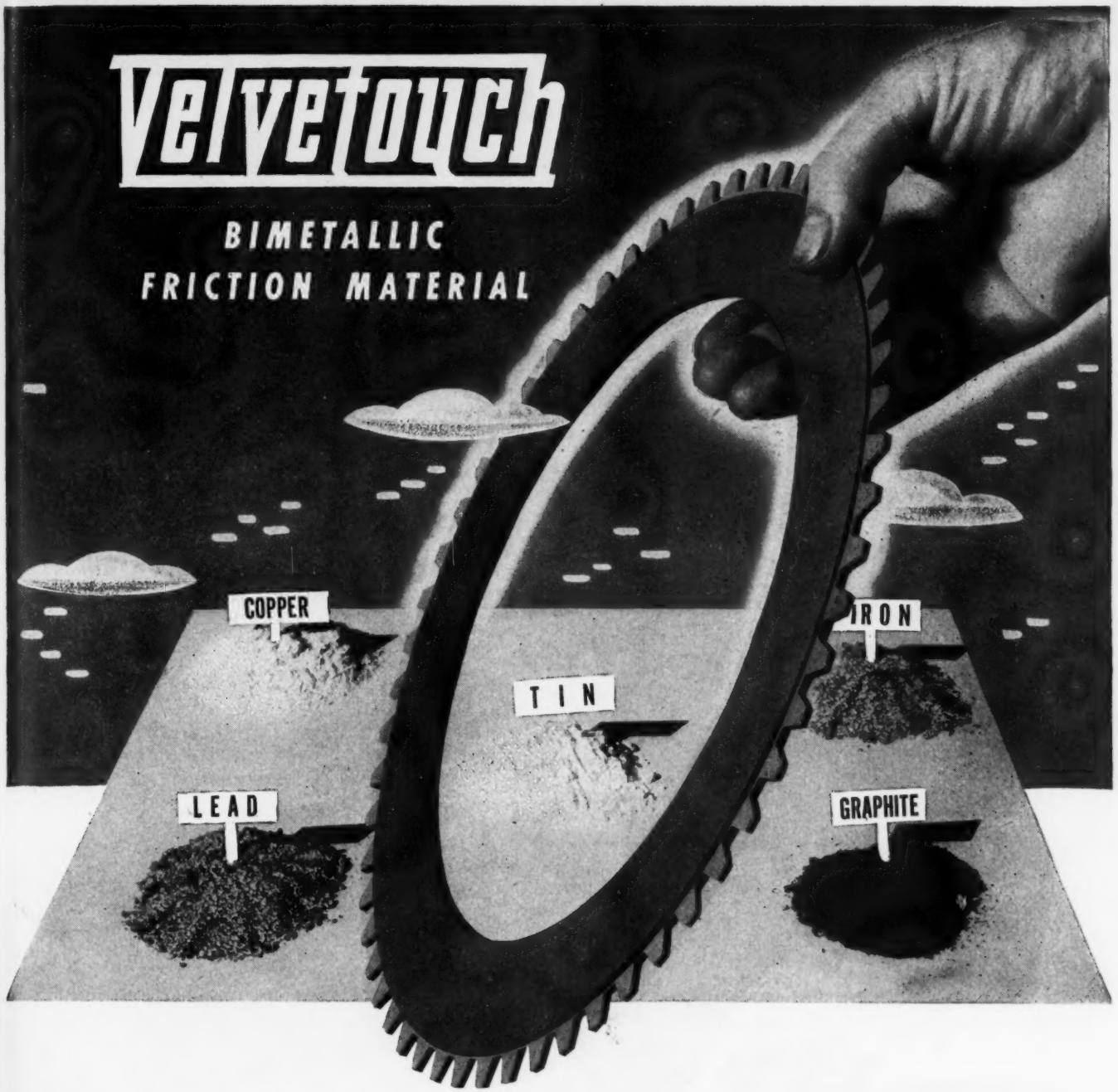
FLETCHER WORKS

Glenwood Ave. & Second St., Philadelphia 40, Pa.

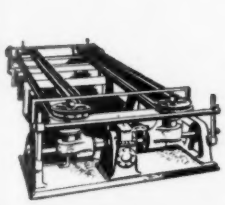
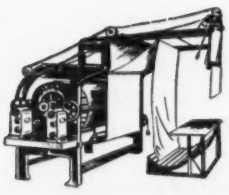
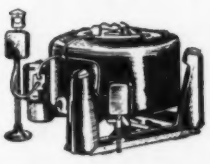
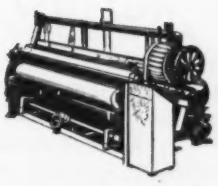
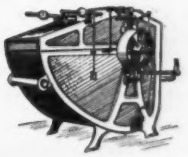
—"LET'S FINISH THE JOB. . . . !"

Velvetouch

BIMETALLIC
FRICTION MATERIAL



Engineered to your Specifications

TRADE MARK REG U S PAT OFF.

Velvetouch

THE S. K. WELLMAN CO.

1374 EAST 51ST STREET
CLEVELAND, OHIO, U.S.A.

PIONEERS IN PUTTING POWDER METALLURGY TO WORK FOR INDUSTRY

...it's yours

UNBRAKO

Reg. U. S. Pat. Off.

Sizes: No. 4 to 1½" diameter. Pat'd and Pats. Pend.

SELF-LOCKING HOLLOW SET SCREW

Our most recent development is the Self-Locking *Knurled Point* "Unbrako" Set Screw, providing an added measure of industrial safety and greatly reducing maintenance worries. When "Unbrako" Hollow Set Screws with Knurled Points are tightened—they stay tightened, because the knurling makes them absolutely self-locking, so that they will never unwind by themselves or shake loose under vibration. They can be easily and quickly removed whenever desired, and used over and over again.

Yes, the "Unbrako" Self-Locking Hollow Set Screw was evolved in response to your needs. It was you, the users, who first insisted upon hollow set screws for use in our "Hallowell" Steel Shaft Collars, back in 1909. Then, as your interest in "Safety First" grew, demands for hollow set screws on whirling machinery increased, and we went to work making them by the millions.

Our complete line of "Unbrako" screw products, including the Knurled Socket Head Cap Screw, is shown in our "Unbrako" catalog. Send for it today.

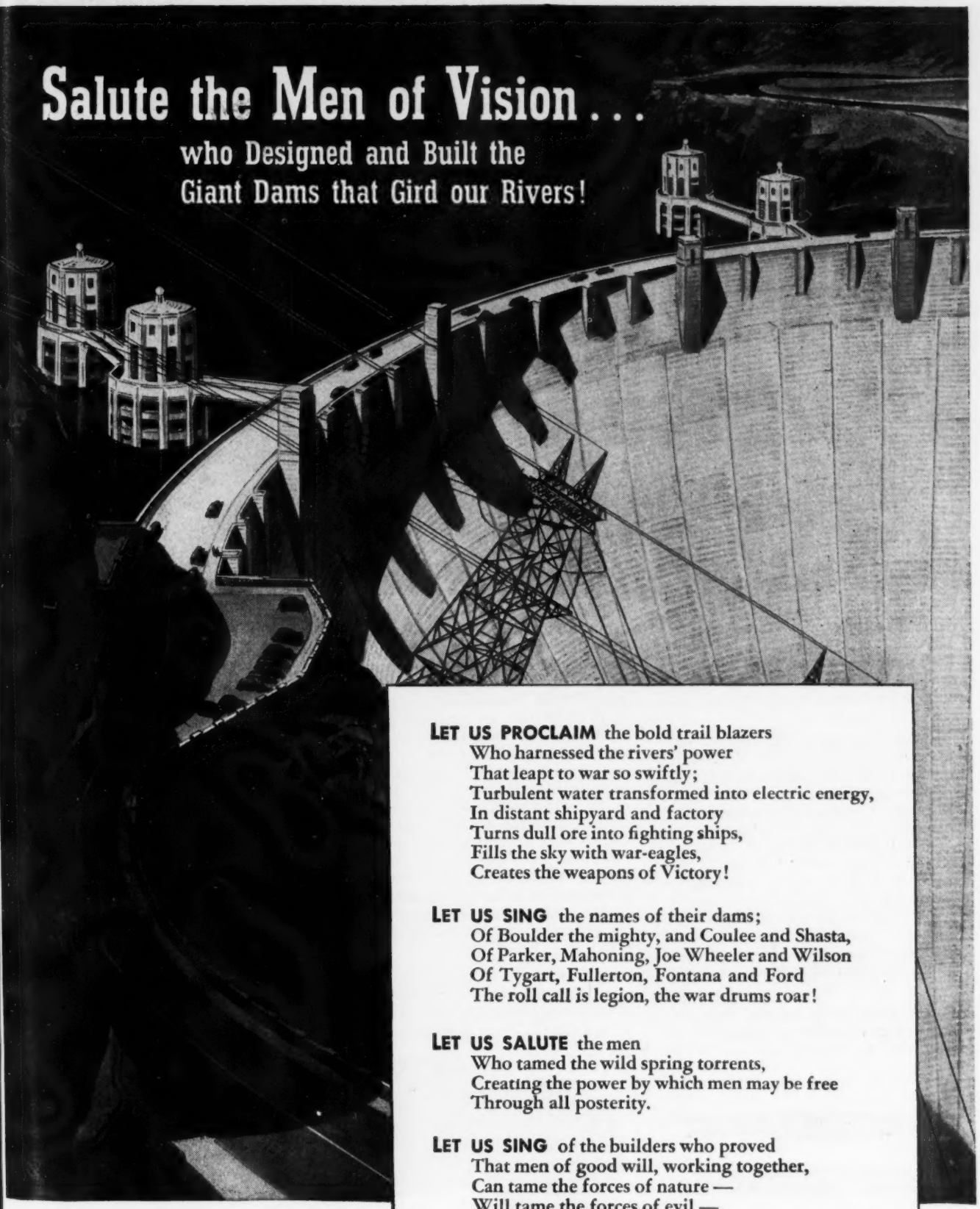
The KNURLING of Socket Screws originated with "Unbrako" *years ago. Over 40 years in business.*

STANDARD PRESSED STEEL CO.

JENKINTOWN, PENNA., BOX 571 • BRANCHES: BOSTON • DETROIT • INDIANAPOLIS • CHICAGO • ST. LOUIS • SAN FRANCISO

Salute the Men of Vision . . .

who Designed and Built the Giant Dams that Gird our Rivers!



LET US PROCLAIM the bold trail blazers
Who harnessed the rivers' power
That leapt to war so swiftly;
Turbulent water transformed into electric energy,
In distant shipyard and factory
Turns dull ore into fighting ships,
Fills the sky with war-eagles,
Creates the weapons of Victory!

LET US SING the names of their dams;
Of Boulder the mighty, and Coulee and Shasta,
Of Parker, Mahoning, Joe Wheeler and Wilson
Of Tygart, Fullerton, Fontana and Ford
The roll call is legion, the war drums roar!

LET US SALUTE the men
Who tamed the wild spring torrents,
Creating the power by which men may be free
Through all posterity.

LET US SING of the builders who proved
That men of good will, working together,
Can tame the forces of nature —
Will tame the forces of evil —
Will build in a peaceful tomorrow
A new hope, a new age, a new world!

The same properties that make Monel vital in our giant dams make it indispensable in dye house equipment

DREAMS, PLANS, WORK . . . all were important in the building of our giant dams . . . as were the *materials* used in them. High on the list of these vital materials was Monel . . . used in vital parts of giant valves . . . as stops for grout that bind the huge concrete sections together . . . in places where strength, long life and resistance to corrosion are essential.

THE INTERNATIONAL NICKEL COMPANY, INC., *67 Wall Street, New York 5, N.Y.*

WITH process industries driving toward ever higher production of vital materials—*acid handling equipment must not fail.* And in many cases Tellurium Lead is helping to keep it on the job.

* * *

One possible source of trouble in such equipment is vibration. The resultant dynamic or fatigue stresses, acting in combination with corrosion, are destructive to acid-resistant linings or coverings—more destructive than either factor alone.

To help combat this stress-corrosion, Tellurium Lead offers two important properties. First, it has the corrosion resistance for which lead is well known. Second, it has improved fatigue resistance. When tested in a Haigh "fatigue" testing machine, it exhibited a 60% greater endurance limit than lead without tellurium.

* * *

Another condition which sometimes causes trouble in acid processing is the repeated, drastic change in temperature to which tanks for heating and cooling are subjected. The continued expansion and contraction, with accompanying movement or working of the lining, may create severe stresses, resulting in failure. Some users report that, in certain cases of this kind, the use of Tellurium Lead results in definitely longer lining life.

This advantage of Tellurium Lead has been attributed, among other things, to its ability to *work harden*—to toughen and increase in tensile strength as it is worked.

This work-hardening property of Tellurium Lead tends to be of value in applications where lead must be bent, stretched or hammered—as in turnover points, elbows, flanges, coils and joints—as well as in equipment which must withstand vibration.

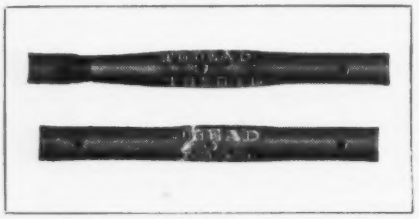
* * *

Another factor in Tellurium Lead's resistance to corrosion under severe conditions of stress and heat is undoubtedly a result of its generally finer, more uniform grain structure, shown in the photomicrographs below. As a result, the surface of Tellurium Lead sheet and pipe tends to be smoother, with less possibility of pitting and local corrosion.

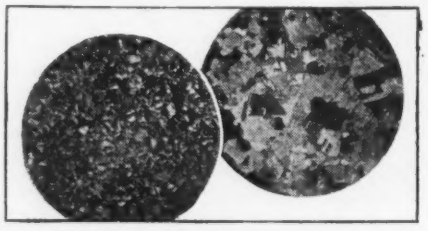
* * *

Tellurium Lead of our manufacture is time-tested St. Joe chemical lead alloyed with a small quantity of tellurium. It is available in sheet or pipe form, or fabricated in coils for heating and cooling purposes.

For further information address the nearest Company branch listed below.



Strengthens under Stress: A section of Tellurium Lead pipe (top) and a section of regular lead pipe (bottom) were stamped with their respective names and pulled out at equal rates in a tensile testing machine. Note how the Tellurium Lead pipe developed strength where it was work hardened by the stamping, whereas the other lead was weakened . . . and fractured.



Finer Grain Structures: Photomicrographs of Tellurium Lead (left) and ordinary lead (right), showing the generally finer, more uniform grain structure brought about by the addition of tellurium. Another significant point: In laboratory tests extruded strips of Tellurium Lead, annealed at 150°C for six months, showed no grain enlargement. Metallurgists agree that freedom from grain growth means less danger of rapid corrosion at elevated temperatures.

USERS "TELL" THE DIFFERENCE

"We find Tellurium Lead stands up much better than other lead under vibration. The trouble we encountered (cracking of the corrosion-resistant covering on rayon spinning machines) has been entirely eliminated."

* * *

"We are using Tellurium Lead regularly in our steam jet mixer heads, as we feel it greatly improves resistance to crystalline fracture under conditions of vibration or mechanical stress."

* * *

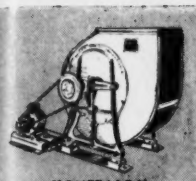
"For the last two years we have purchased all our requirements in Tellurium Lead. We find a considerable advantage in resistance to vibration crystallization."

* * *

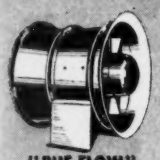
"We find this material has a greatly improved resistance to so-called vibration crystallization."

TELLURIUM LEAD

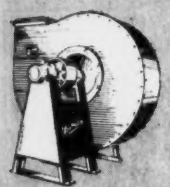
NATIONAL LEAD COMPANY—New York, Baltimore, Buffalo, Chicago, Cleveland, Cincinnati, St. Louis, National-Boston Lead Co., Boston; John T. Lewis & Bros. Co., Philadelphia; National Lead & Oil Co. of Penna., Pittsburgh; Georgia Lead Works, Atlanta; American Lead Corp., Indianapolis; Master Metals, Inc., Cleveland; The Canada Metal Co., Ltd., Toronto, Montreal, Winnipeg, Vancouver.



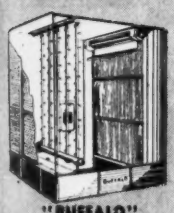
"BUFFALO"
Limit-Load Ventilating Fan



"BUF-FLOW"
Axial Flow Fan



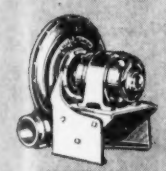
"BUFFALO"
MX Mill Exhauster



"BUFFALO"
Air Washer

"BUFFALO"
Highboy Unit Heater

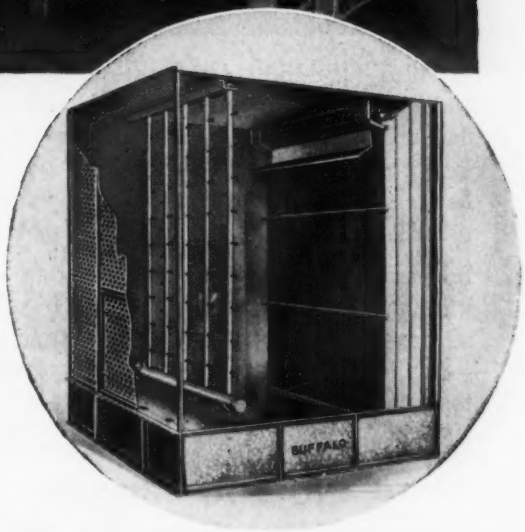
"BUFFALO"
Breeze Ventilating Fan



"BUFFALO"
Type E Blower

"BUFFALO"
Volume Fan

Sure... there's a wartime shortage of air conditioning equipment but HERE'S ONE WAY TO MEET THE PROBLEM NOW!



YES, here's a practical way to bring your plant many of the benefits of air conditioning — despite the shortage of complete air conditioning equipment. Buffalo Ventilating Fans, in combination with Buffalo Air Washers, provide clean, dust-free air, properly humidified — the kind of plant atmosphere that keeps up workers' efficiency and morale every season of the year and helps safeguard quality production.

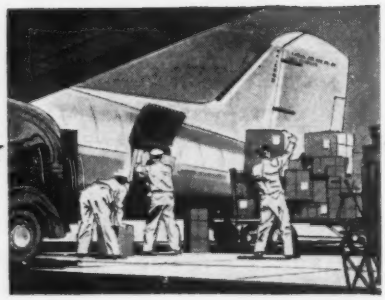
Readily installed at low initial cost, Buffalo equipment provides NOW a satisfactory answer to your air conditioning problem. Complete engineering data will be forwarded promptly on request.

BUFFALO FORGE COMPANY
150 MORTIMER ST. BUFFALO, N. Y.
Branch Engineering Offices in Principal Cities
Canadian Blower and Forge Co., Ltd., Kitchener, Ont.

"Buffalo" VENTILATING FANS AND AIR WASHERS

★★★★★★★★★★★★★★★★★★★★

Air Express Rates Reduced

★★★★  ★★★★

Effective July 15th, Air Express rates within the United States were substantially reduced—many reductions ranging as high as 12½%, depending on the weight of the shipment and the distance it moves. As a result, the average saving to shippers amounts to 10½%.

Increased volume of Air Express traffic stimulated by wartime demands on this fastest form of shipping service—accompanied by peak efficiency in handling—has made it possible to pass these savings along to shippers of air cargo.

So now, more than ever, *it pays to ship by* AIR EXPRESS!

NOTE TO SHIPPERS

To keep costs down—*pack compactly*, obtaining best ratio of size to weight. To insure fastest delivery—*ship when ready*—as early in the day as possible. *Ask* for our new 1943-44 CALENDAR-BLOTTER. Write Dept. PR-10, Railway Express Agency, 230 Park Avenue, New York 17, New York.

AIR EXPRESS
Gets there FIRST

Phone RAILWAY EXPRESS AGENCY, AIR EXPRESS DIVISION
Representing the AIRLINES of the United States

A Sure Cure for
DINGY DISHES *and* GLOOMY GLASSWARE

And so thrifty!

Crystal Cleanser dissipates grayish film like magic . . . *keeps* dishes and glassware at their brightest best! No need now for occasional soaking in strong solution. With continued use, *Crystal Cleanser* keeps dishwashing machines free from crustiness. All this *and much more — Crystal Cleanser* requires but half as much, in most cases, as other compounds. Use it for both hand and machine dishwashing.

For trial order or literature, phone or write nearest *Finnell* branch or Finnell System, Inc., 1909 East St., Elkhart, Ind.

FINNELL SYSTEM, INC.
Pioneers and Specialists in
FLOOR-MAINTENANCE EQUIPMENT AND SUPPLIES

BRANCHES IN ALL PRINCIPAL CITIES

BEHIND THE GUN

. . . and behind the machine, men have learned to depend on Coffing Hoisting Equipment. Rugged — dependable and economical. All Coffing rachet lever hoists are tested up to 100% over rated capacity. Illustrated is model ATG "Safety Pull" ratchet lever hoist. Write today for Catalog GJ 6.

COFFING HOIST CO.
Manufacturers of
Ratchet Lever, Spur Geared, Electric and Differential Hoists
Trolleys • Utility Maintenance Tools
DANVILLE ILLINOIS

FLASH!

American Blower Vertical Unit Heater

WPB SIMPLIFIES THE METHOD OF BUYING UNIT HEATERS

★ Question:

Are any special forms required to obtain unit heaters?

★ Answer:

No! Under the streamlined set-up just announced by WPB, it is no longer necessary to fill out PD 412-A Forms.

★ Question:

Who is eligible to buy heaters?

★ Answer:

Any person is eligible to buy unit heaters now, who has an order for unit heaters carrying a priority rating of AA-5 or better, with a specified delivery date.

★ Question:

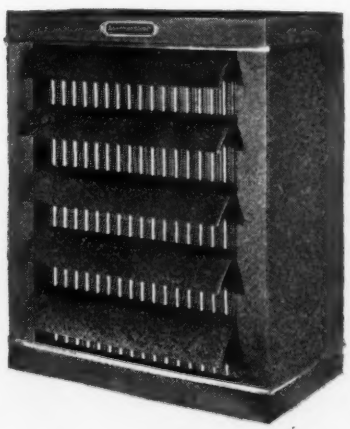
Are unit heaters still available? What types?

★ Answer:

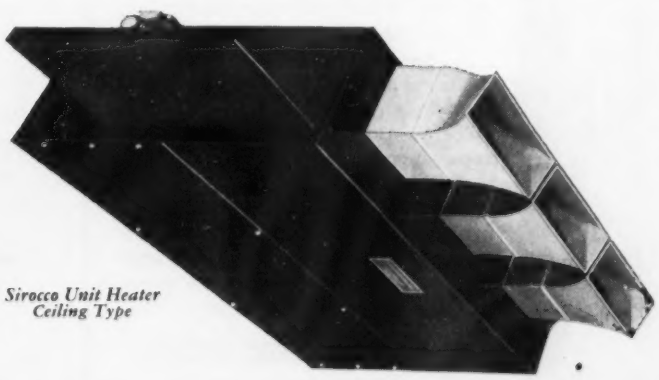
Yes. Horizontal Unit Heaters, 24,000 B.T.U. and larger — Vertical Units, 144,000 B.T.U. and larger — Blower Type Units, 216,000 B.T.U. or larger — all with constant speed motors — are available.

The WPB has greatly simplified the process of getting unit heaters for those who need and should have them. If you have a Priority of AA-5 or better, and want prompt delivery of American Blower Steel Unit Heaters of the Vertical Type for ceiling suspension or of the Horizontal or Blower Type for wall or ceiling installation in your factory, warehouse, shop, garage or assembly plant, get in touch with an American Blower Distributor or the nearest American Blower branch office.

Unit Heaters save vital fuel, save critical materials and save production space.



Venturafin Unit Heater



Sirocco Unit Heater Ceiling Type

ARMY E NAVY
For production "Well Done"

AMERICAN BLOWER

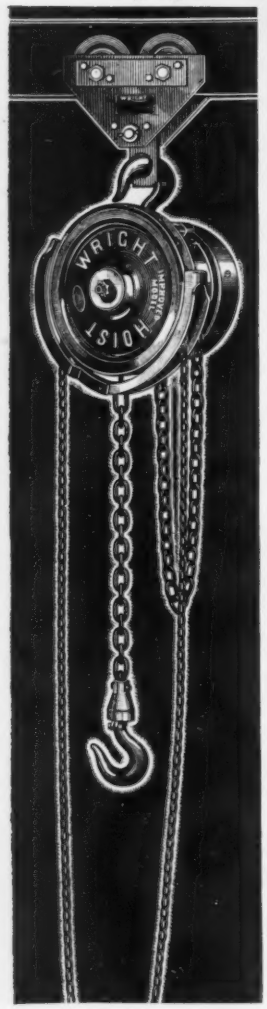
AMERICAN BLOWER CORPORATION, DETROIT, MICH.
CANADIAN SIROCCO COMPANY, LTD., WINDSOR, ONT.

Division of AMERICAN Radiator and "Standard" Sanitary Corporation

AMERICAN BLOWER — MECH. DRAFT · AIR-CONDITIONING · FLUID DRIVES · DUST COLLECTORS

WRIGHT
Improved High Speed
HOISTS

Buy your load chain a drink!



Believe it or not, mister, a well-lubricated load chain will outlast a dry chain **fifteen times.** That sounds incredible, but it's true. You see, every link has a bearing area where it meets its neighboring links. Unless there is a protecting film of oil at these points, the friction will cause undue wear. Another place where the protection of oil is needed is when the chain comes in contact with the load wheel.

. . . But let's go back to the chain itself. A dry chain wears prematurely —lengthens itself out of pitch. And a chain out of pitch cannot seat itself properly in the wheel sockets. Another vicious result of wear.

. . . So please—now that all steel products are critical—lubricate your load chain regularly and make it last; twice, five times, ten times, yes—**fifteen times** as long.

Send today for a free copy of the Wright Crane Signal Chart. This chart (36″ x 24″) can be tacked up on the bulletin board to teach the men standard crane signals which will speed operation and promote safety.

WRIGHT MANUFACTURING DIVISION
York, Pa., Chicago, San Francisco, New York
AMERICAN CHAIN & CABLE COMPANY, INC.
BRIDGEPORT, CONNECTICUT

ACCO
In Business for Your Safety

ARMY E NAVY
FLYING OVER THE WRIGHT HOIST PLANT

PRODUCTIMETERS *are a "Must" on Textile Machines*

With the vast textile industry unremittingly at work turning out materials for our armed forces, as well as for civilian needs, it is more than ever vital to have absolute check on production.

There's a Productimeter for every counting application throughout the entire processing . . . braiding, coating, combing, doubling, drying, folding, inspecting, winding, dyeing, bleaching . . . On looms the pick method of counting offers a sure way of determining rates of pay. And you can depend on Productimeters . . . they're built for speed, accuracy and hard service. (Above) Model 5-H-2 attached to Folding Machine.

Write for descriptive Catalogs:

Pick Counters No. 5
Yardage Counters No. 6
Revolution Counters No. 8
Predetermined Counters No. 15

DURANT MANUFACTURING CO
1931 N. Buffum Street, Milwaukee, Wis.
179 Eddy Street, Providence, R. I.

LITTLE **PRODUCT—**
BIG JOB!

Ring travelers in themselves are tiny products . . . but the job assigned to them today is mountainous!

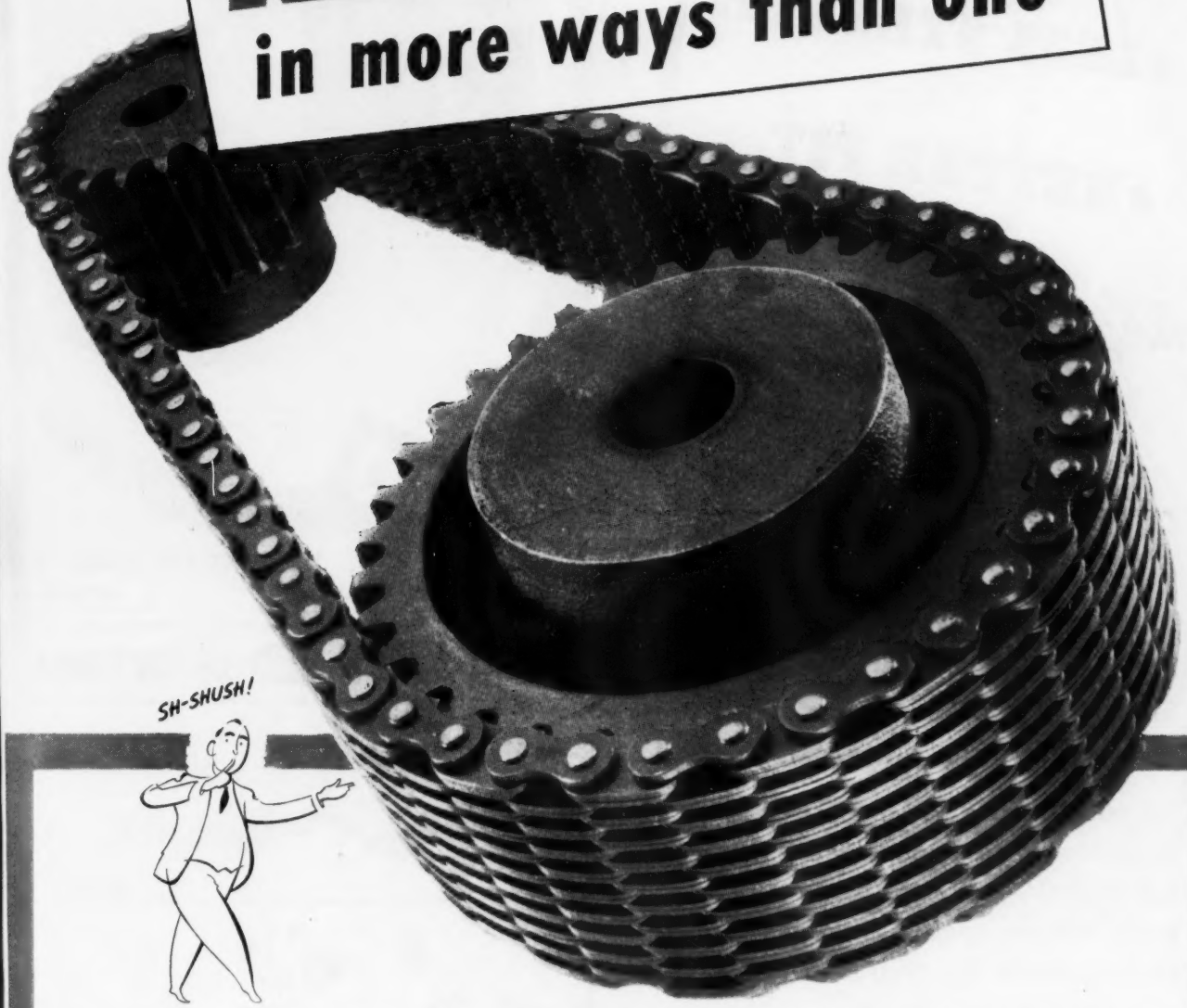
Dary Ring Travelers are built to successfully accomplish the spinning and twisting jobs created by todays huge production demand.

Ask a technically trained Dary Representative to tell you more.

DARY RING TRAVELER CO.
Taunton, Mass.

JOHN E. RUMPHRIES, Box 843, Greenville, S. C.
JOHN H. O'NEILL, Box 720, Atlanta, Ga.
H. REID LOCKMAN, Box 515, Spartanburg, S. C.

Power Drives KEEP QUIET in more ways than one



. . . when they're WHITNEY SILENT CHAINS

These smooth-running chain drives deliver power... *all of it*... silently to shaft or spindle, at constant speeds that help maintain uniformity of production. And what's more, Whitney Silent Chains *stay* silent as far as calls for maintenance and repairs are concerned. Exceptional wear-resistance comes from the Whitney double-bearing principle... the extra strength of Whitney alloy-armored steels... the exclusive feature of pin-diameters which are equal to roller chain pin-diameters of the same pitch... and the fact that shocks and overloads are distributed on both the inside and outside of the chain bushings, giving 50% greater load-bearing area.

That's why nothing is heard from Whitney Silent Chains, once they go into operation. And that's why more than 20 leading builders of textile machines specify these chains for all drives. *You* can gain the same advantages by specifying Whitney Silent Chains for *duration drives* on all the machines you build or operate.

The WHITNEY CHAIN and MANUFACTURING CO.

HARTFORD, CONNECTICUT, U. S. A.

•MORE WEAR
•LESS STRETCH
•BETTER FIT

with Laurel Rayon Oils

PROPER FINISHING is a rayon requisite in spite of the need for speed in wartime production. Laurel Rayon Oils actually save production time. Laboratory and mill tested, they offset rayon weaknesses by improving lubrication, effecting gain in resiliency with resultant longer wear and better fit.

Laurel Rayon Oils and Finishes are available for immediate delivery. Our Laboratory stands ready to cooperate with you on special purpose compounds. Send for trial order today.

★

SPEED VICTORY— BUY BONDS

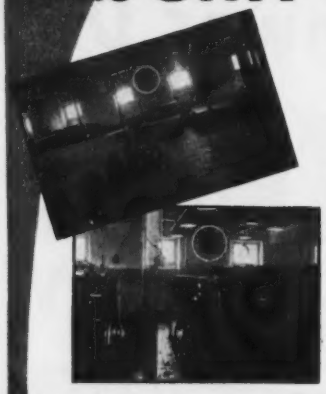
SOAPS • OILS • FINISHES

Laurel

SOAP MANUFACTURING CO • INC •

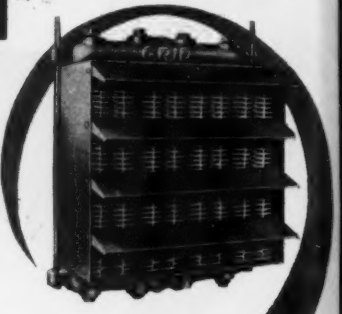
WM. H. BERTOLET'S SONS ESTABLISHED 1909
TIOGA, THOMPSON & ALMOND STS., PHILADELPHIA, PA.
WAREHOUSES: PATERSON, N. J., CHATTANOOGA, TENN., CHARLOTTE, N. C.

The UNIT HEATER
FOR TEXTILE MILLS



Regardless of atmospheric, lint and dust conditions in a textile mill that are expected to cause trouble, the GRID Unit Heater will operate efficiently at all times. Particles in the air do not plug up the GRID Unit Heater. And, it is a unit heater that will last longer than other types of heating equipment —without maintenance expense. Its lower outlet temperatures with greater air volume and more air changes per hour assure comfort in the working zone at low fuel cost.

Engineered and tested to operate with either steam or hot water, up to 250 lbs. steam pressure. Each "fin" heating section is made of high test cast iron to cooperate with the war effort (the standard Grid from 1929 to 1942 was made with aluminum heating sections). No electrolysis to cause corrosion . . . no leaks . . . no breakdowns . . . no heating failures.



Catalog and capacity tables upon request.

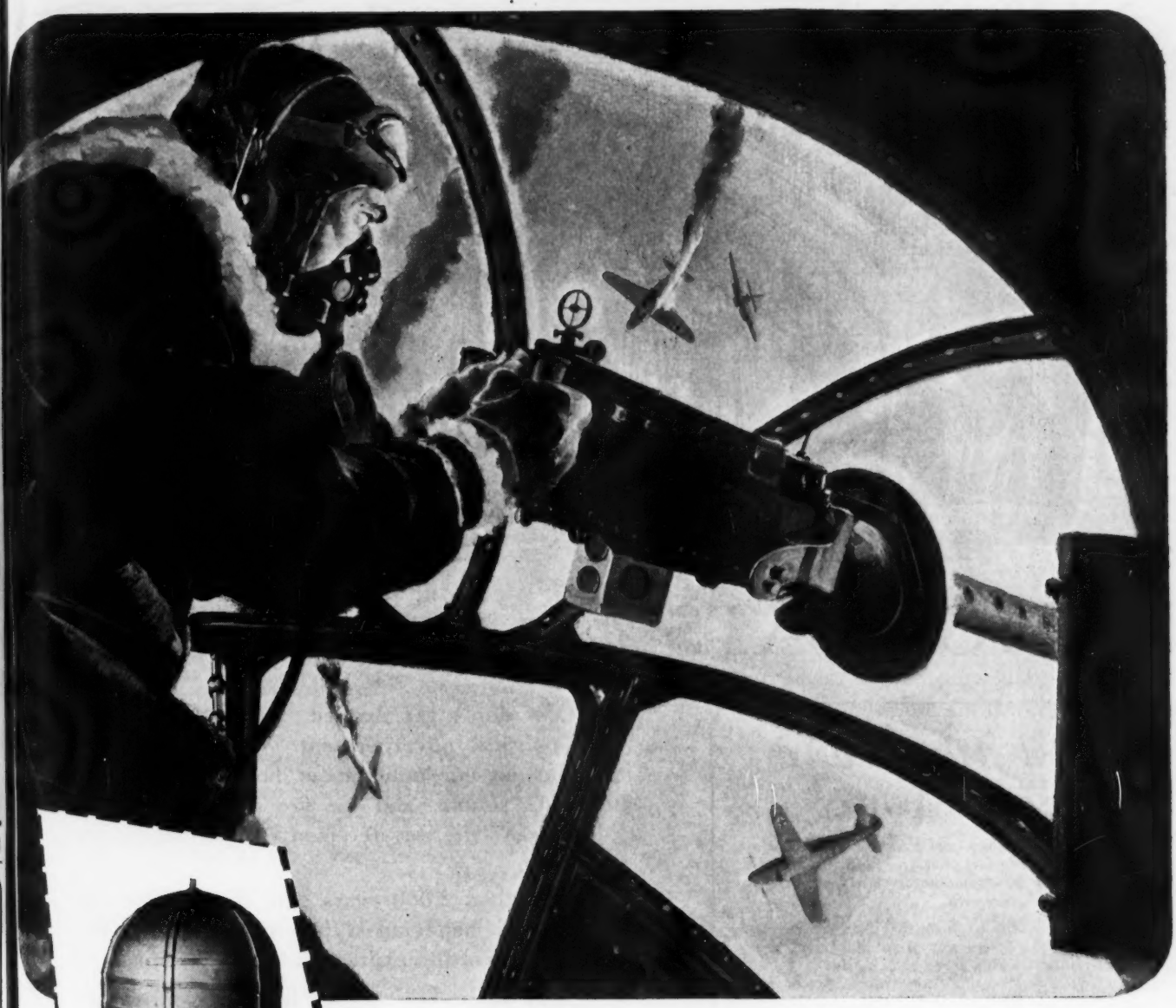
GRID

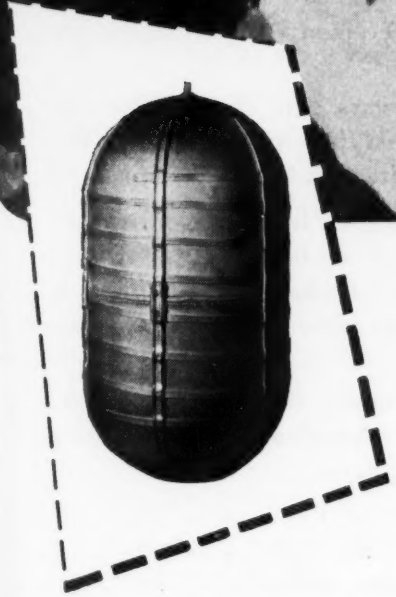
D. J. MURRAY MFG. CO.
WAUSAU, WISCONSIN

TISSUE TIPS by VICTORIA

Specify VICTORIA TOILET TISSUES

Single Fold, Double Fold or Black Core—for dependable quality.
Victoria Paper Mills Co., Fulton, N.Y. Craftsmen in paper-making since 1880.





DYEING MACHINES YESTERDAY...
OXYGEN TANKS TODAY!

The same ARMCO Stainless Steels that were so desirable for dye vats and other textile machines before the war now serve our Air Forces in many ways. One of the most important is providing oxygen tanks for our high-flying fighter and bomber crews.

ARMCO Stainless is used in these containers because it is highly corrosion resistant and combines light weight with great strength. (Each tank is factory-tested at 700 psi hydraulic pressure.) Tubes from the tanks to fliers' masks supply pure oxygen after the plane gets in the "danger zone" far above the earth.

If you now have ARMCO Stainless Steel textile equipment its advantages are yours during the war. It is easy to keep your equipment operating at peak efficiency. Just a few simple maintenance rules will make repairs and replacements unnecessary.

Helpful suggestions are given in a valuable folder titled "Your Stainless Steel Equipment . . . Its Care and Advantages in Textile Processing." Write for a copy. Just address The American Rolling Mill Company, 2471 Curtis Street, Middletown, O.

THE AMERICAN ROLLING MILL COMPANY

ARMCO STAINLESS STEEL

VOTE HERE
This
NEWSPAPER
advertisement was published in Washington, New York and Chicago by McGraw-Hill, to make friends for business.
COURT

DEMOCRATS *need "Seed Money," too*

Seed Ideas and Seed Money

Whether you run a whole business, a plant or a section, the very fact that you hold this magazine in your hands indicates that you are interested in *improvement*.

Did you ever stop to think that that instinctive desire to find a better way of doing things is the fundamental driving force of America?

It is.

If allowed to function in an environment economically and politically favorable to industry, this American instinct for improvement can carry us forward to undreamed standards of living and of culture.

The only barrier to constant improvement is lack of public understanding.

Industry cannot have a favorable environment, however, until industry itself clearly defines its objectives, and explains them clearly to every citizen *in terms of social progress*.

This Seed Money advertisement (reprinted from the McGraw-Hill newspaper campaign now running in Washington, New York and Chicago) is intended as a starter in a nation-wide process of education on the source of good living.

Some companies are running the Seed Money Advertisements locally, over their own signatures. Others are starting their own campaigns. Either way, the Seed Idea is being planted.

If you would like to reproduce this message in your plant city, free mats and booklet reprints (sold at cost) are available.

James H. McGraw, Jr.
President

McGraw-Hill Publishing Company, Inc.

NOW don't get excited, folks, this isn't a political advertisement. We've got some thoughts on our mind about how to make big problems simple, and we are using the word "democrat" the way the men who thought it up used it.

More than 2,000 years ago, the Greeks decided to quit believing in Superman, and they invented this word to express their general idea.

► Every schoolboy knows how that idea was pulled off the shelf sometime back, and a form of government hammered out that would allow Joe Doakes enough personal elbow room to do his stuff in the world.

Every schoolboy knows, too, that what followed—particularly in America—was the most rapid development ever known.

Within the memory of living men, we have traded the economy of the hoe for the tractor, the muscle for the motor, the eye for the electronic tube.

So vast has our mechanical might become that by shifting the ends of our production lines from the garage, the kitchen and the living room to the skies above Italy, Germany and Japan, we are changing the history of the whole world.

With all this glory to his credit, wouldn't you think the common man would know how he did it,

[FREE MATS: If you would like to publish this message over your own company name, or distribute it in handy booklet form, write or wire: Research Dept., McGraw-Hill Publishing Co., Inc., 330 West 42nd St., New York (18), N.Y.]

DEMOCRATS *need "Seed Money," too* (cont'd)

and how to keep on the road to better living after the war?

He doesn't know, because he discounts the part that his own, native love for *improvement* plays in our national life.

This love for *improvement* started on pioneer farms. It continued in millions of garages and kitchens. It rides with every American gunner today.

American *improvement* is essentially a Joe Doakes affair. Here's how it works:

1. Joe invents something and invests Seed Money in equipment and materials to make it.
2. People buy it.
3. That makes good paying jobs.
4. Joe invests more Seed Money to improve his product or his method of making it.
5. More people buy it.
6. That makes more good paying jobs.
7. Joe invests more Seed Money in more and better machines, to get volume production.
8. So, Joe lowers his price.
9. Still more people buy.
10. That makes more good paying jobs.

Try to figure out any other foundation for American wealth, leisure, culture, fighting strength or material possessions!

► This simple progression, multiplied by millions of instances, explains why "Seed Money" is so important in our national life.

Seed Money is used every time a product or a machine is improved, because Seed Money means "that part of profit which is 'plowed back' into a business."

Joe Doakes will need his Seed Money, to attract customers and create jobs when this war is over. But a dangerous percentage of Joe's Seed Money is being blotted up in the Excess Profits Tax.

Perhaps our government intends to return some of this money after the war, as a loan. But this would mean another government bureau, more Federal employees, all of which will further increase the cost of government. But above all—Business will not be free to "take a chance" with this money. It belongs to the government. Hence, the "take a chance" spirit, the life breath of progress, will be hobbled just when Americans need it most.

► There is a simple and much more effective way to supply our American industry and commerce with Seed Money.

Change our tax laws to permit industry and business to set aside from present earnings the tax-free Seed Money that they will need to reinvest in improvement of plant, products or essential operations to create jobs after the war.

To put this simple, effective procedure into practice, our government must change its attitude toward the source of all improvement—Seed Money. To bring this about, remind your Congressman that:

"Industrial Progress
is the Source of all Good Living."

THE McGRAW-HILL NETWORK
OF INDUSTRIAL COMMUNICATION

24 publications, which gather "war-news" from the "war-production-front" through a staff of more than 153 editors and 725 engineer-correspondents . . . More than 1,500,000 executives, designers, production men and distributors use the editorial and advertising pages of these magazines to exchange ideas on war-production problems.

McGRAW-HILL BOOKS

Publishers of technical, engineering and business books for colleges, schools, and for business and industrial use.

This advertisement is available in handy booklet form. (Less than 100 copies free. Larger quantities, $1.00 per 100; $10.00 per 1000.)

McGRAW-HILL

PUBLISHING COMPANY, INC. . . . BOOK COMPANY, INC.

330 WEST 42ND STREET, NEW YORK (18), N. Y.

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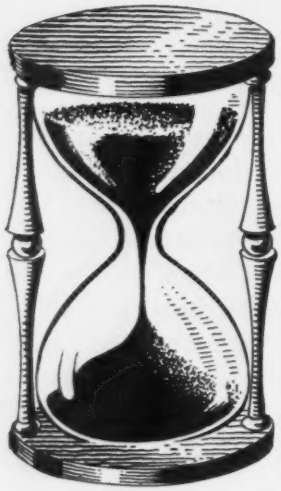

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That calls for U. S. RING TRAVELERS

There are still a lot of textile men who say all Ring Travelers are alike.

But if you're a mill man who thinks maybe he can get better performance from Ring Travelers, we wish you'd let us show you something about "U.S."

When we talk about specific Traveler designs we mean designs based on every single factor that influences Traveler performance . . . rings, weights, twist, stock, spindle speeds, heat, lubrication, etc., etc.

We'd like to tell you about "U.S." scientific metal-hardness control in bronze or steel.

We'd like to show why you never get a "spotty" lot of U. S. Ring Travelers.

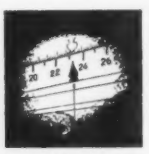
We're not the only people in the world who make good Ring Travelers. But the prestige and position held by U. S. Ring Travelers was gotten the hard way.

So—if you're up against it for production—and better Travelers can help you—we'd like to send over a man to your plant, who really knows Ring Travelers, and the things that influence their performance. Make us PROVE we can help you!

Just an example of U. S. Leadership

PERFECT BALANCE
Weighs same on both sides. Straight part of shank is in center of gravity. Distributes lubricant and wears evenly. Will not pivot twisting self and rayon.

THE NE-BOW
Prevents yarn ends flying out, provides ample headroom for threading—prevents binding on ring. Note "bend inward" at top of horn.



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for better metal—dominates "U.S." production! Carburizing and tempering ovens are electrically controlled through pyrometers—for better performance.

THE BEVEL EDGE
Great pioneering "U.S." contribution to smooth spinning, twisting. Eliminating angular edges, gives uniformity of tension more even yarn, less "fly."

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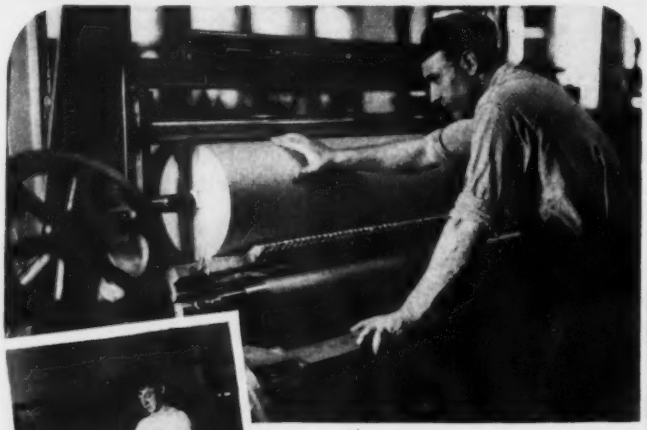

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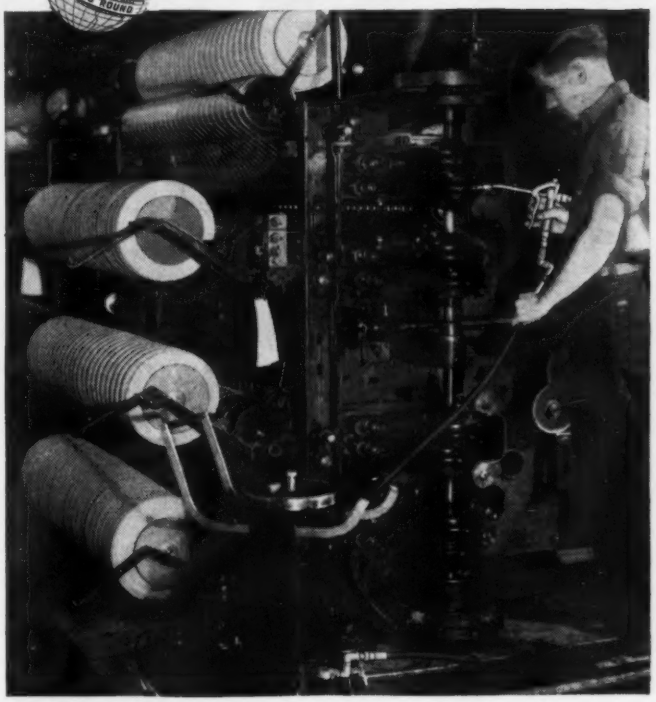

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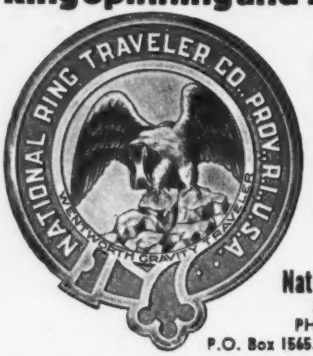

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meet the need for Speed—
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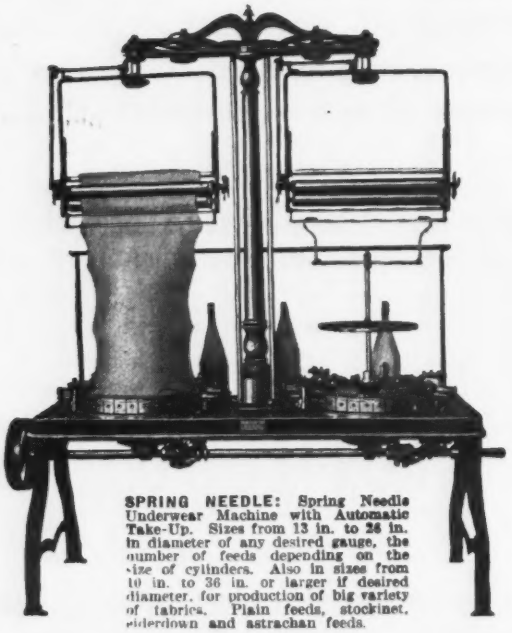

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Let us tell you why
—and how . . . just **WRITE**

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MANUFACTURING CO.
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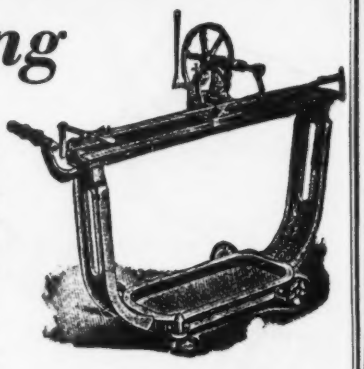
Spring Latch Needle
KNITTING MACHINERY

Perfect Seams for Finishing



EVEN when operated by the lowest paid help, the Dinsmore No. 1 Hand Power Portable Railway sewing machine provides faultless seams.

This machine does its work anywhere, being easily moved about at will. It is an efficient practical means of joining the ends of cloth for its passage through such finishing operations as shearing, dyeing, printing, etc.

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The seam can be sewed very near the edge and is easily removable. *The edges come out all even.* Write for complete catalog.

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No. 1 TEXTILE YEARBOOK SALEM, MASS.

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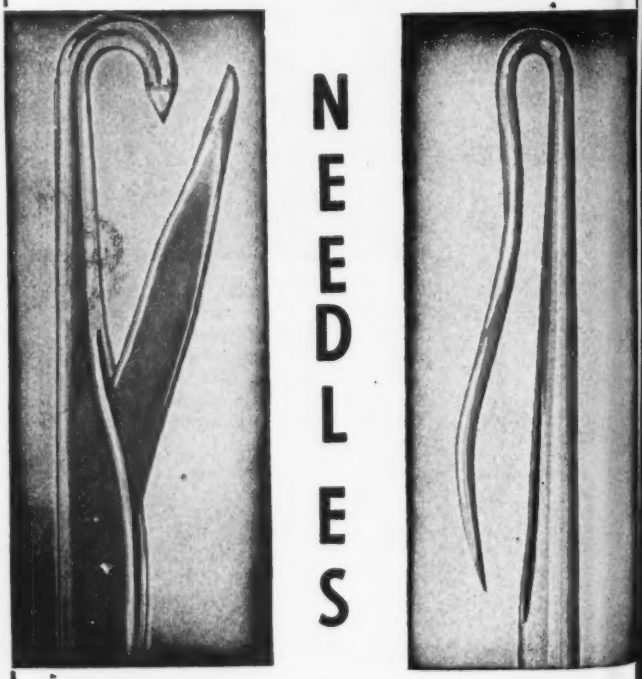
Quality LATCH and SPRING-BEARD



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also
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SPRING-NEEDLE RIB KNITTING MACHINES

UNDER THE RIGID DEMANDS OF WAR WORK PRODUCTION SCHEDULES, THIS COMPANY IS RESTRICTED TO SUPPLYING ONLY REPAIR PARTS FOR

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Single-Head, Single-Unit, Full-Fashioned

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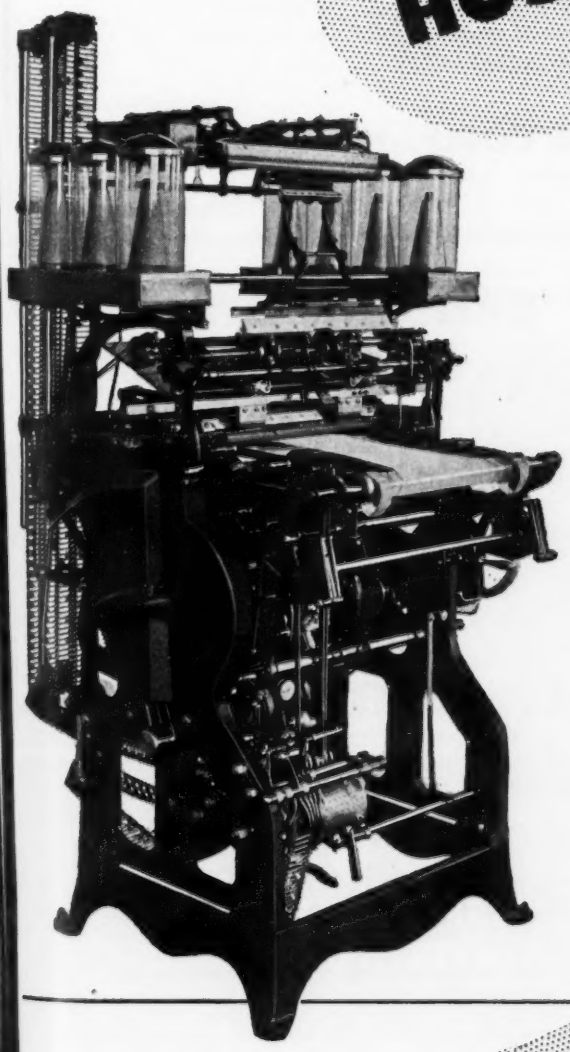

But let us not lose sight of the splendid war job these machines are doing in hosiery mills throughout the country. By knitting a complete stocking, perfect from top to toe in ONE CONTINUOUS OPERATION, they are SAVING the TIME and MAN POWER ordinarily expended in the change-over necessary with leggers and footers. A substantial daily contribution to the defeat of that insidious enemy, lost-production hours.

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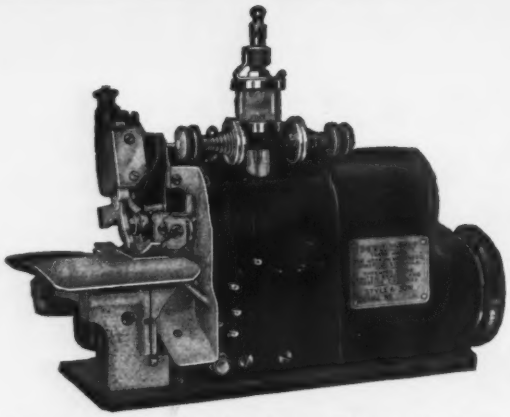

Merrow Class A Machines, illlustrated, have made possible quality production, high speed and low operating costs to a degree greater than ever before. They are easy to handle, simple to adjust, sturdy in design, accurate in workmanship and readily adapted to many kinds of work. Let us or our distributor nearest you demonstrate the work of these machines on samples of your own fabric.

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Types 501, 502, 503, 504 and 505

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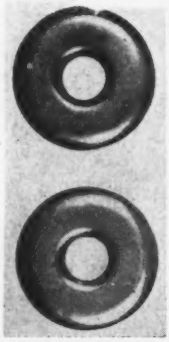

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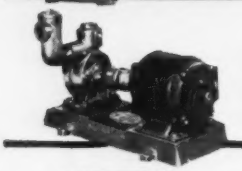

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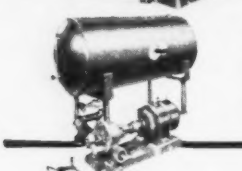

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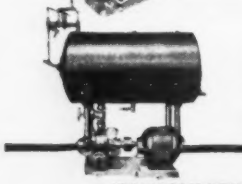

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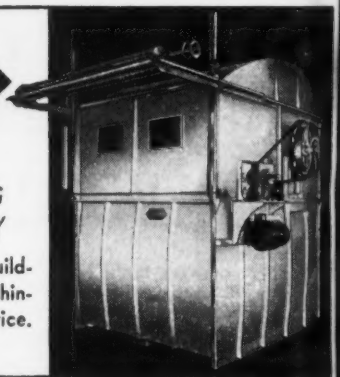

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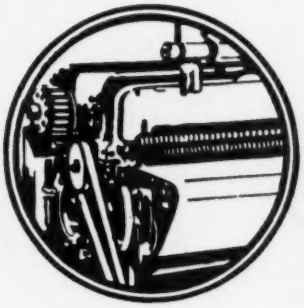

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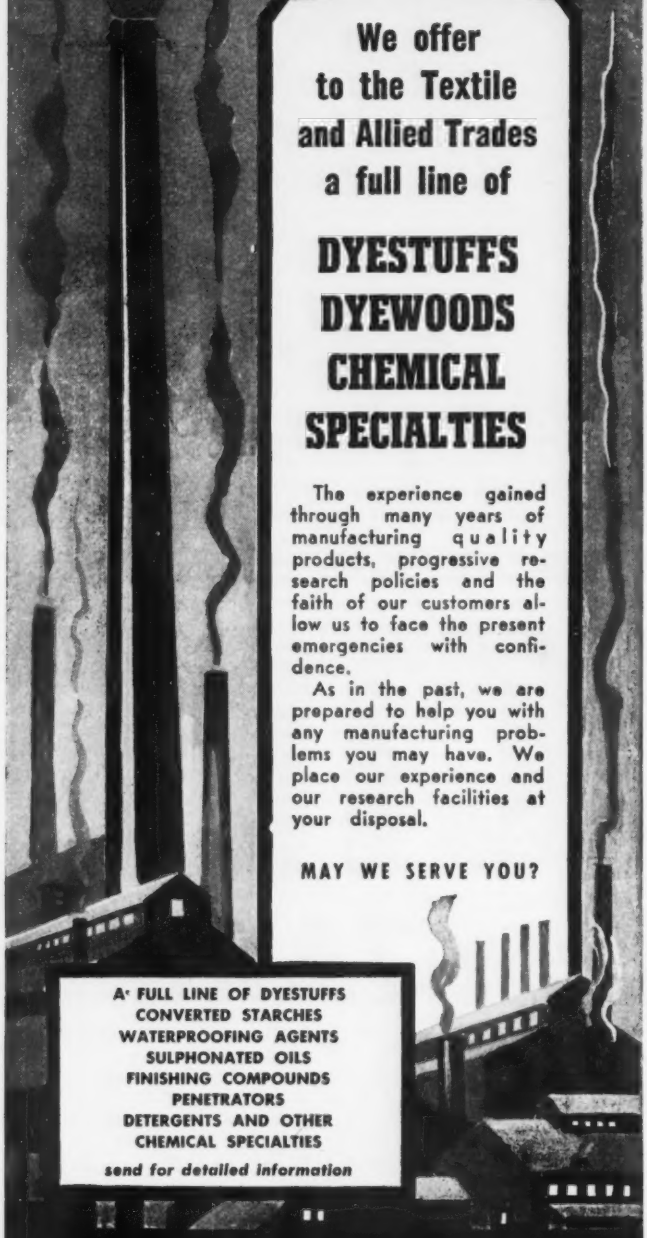
DYESTUFFS AND
CHEMICAL SPECIALTIES



We offer
to the Textile
and Allied Trades
a full line of

DYESTUFFS
DYEWOODS
CHEMICAL
SPECIALTIES

The experience gained through many years of manufacturing quality products, progressive research policies and the faith of our customers allow us to face the present emergencies with confidence.

As in the past, we are prepared to help you with any manufacturing problems you may have. We place our experience and our research facilities at your disposal.

MAY WE SERVE YOU?

A FULL LINE OF DYESTUFFS
CONVERTED STARCHES
WATERPROOFING AGENTS
SULPHONATED OILS
FINISHING COMPOUNDS
PENETRATORS
DETERGENTS AND OTHER
CHEMICAL SPECIALTIES
send for detailed information

COMMONWEALTH
COLOR & CHEMICAL CO.

Main Office and Works:

Nevins, Butler and Baltic Streets, Brooklyn, N. Y.

Philadelphia Chicago Charlotte
Gloversville Kansas City Montreal

ONE MINUTE TALKS ON

Cleaning Cork Covered Rolls the Oakite Way!

To keep the cork covered rolls on your spinning machines perfectly clean so that fabrics and materials will not become spotted, try this simple, easy Oakite method.

Just brush rolls with recommended Oakite solution and then rinse. You will find that ALL oil, dirt, grease, grime, paint and other residues are quickly, completely removed. Our nearby Technical Service Representative will gladly give you details on time-tested Oakite ways to SPEED-UP this and all your other maintenance tasks. Write today . . . there's no obligation!

OAKITE PRODUCTS, INC.
42 Thames Street, New York 6, N. Y.
Technical Service Representatives Located in All Principal Cities of the United States and Canada

OAKITE *Specialized* CLEANING
MATERIALS & METHODS FOR EVERY CLEANING REQUIREMENT

ROME SOAP MFG. CO.

MANUFACTURERS OF
Textile, Laundry
and
Special Soaps
ROME, N. Y.

WRITE US FOR
SAMPLES AND
QUOTATIONS

D. R. KENYON & SON
RARITAN, N. J.

TENTERING
and DRYING
MACHINERY

PENICK & FORD, LTD.
INCORPORATED
CORN STARCHES, DEXTRINES, GUMS, CORN SUGARS & SYRUPS
NEW YORK, N. Y. - - - - CEDAR RAPIDS, IOWA
SOUTHERN OFFICES: ATLANTA, GA. - - - - SPARTANBURG, S. C.

John:
Douglas Crown Thin Boiling Starch is made in all fluidity ranges to suit each individual mill's requirements. Let's arrange for a trial order of the type recommended for our purposes.
Jim

RAPIDASE
THE STANDARD DE-SIZING AGENT
for cottons, rayons and mixed goods

For your de-sizing problems — our technical men are at your service . . . Write or 'phone.

WALLERSTEIN COMPANY, INC.
180 MADISON AVENUE, NEW YORK

WIDEN
YOUR SILICATE
GRADE RANGE

Is Silicate of Soda just "waterglass" to you? Then ask for free copy of Bulletin 17-1. In it are described over 30 different silicates (dry and solution).

Why so many grades? Because the properties of the various silicates are different and produce different effects, they fill many needs in the textile industry, e.g.

PEROXIDE BLEACHING . . . . . Star Brand.
Lengthens life of bleach bath
KIER BOILING . . . . . "TN" Brand.
Improves removal of wax and oil
COATING KIERS . . . . . "N" Brand.
Prevents staining of cloth
RAYON SCOURING . . . . Metso Granular.
Cleaner fabrics, more level dyeing
WOOL SCOURING . . . . . "C" Brand.
Lowers scouring cost

For full information on these uses of PQ Silicates, write us. Specific advices when particular conditions are known.

SILICATES OF SODA
PHILADELPHIA QUARTZ CO.
Gen'l Off.: 125 S. Third St., Phila., Pa.
Chicago Sales Off.: 205 W. Wacker Dr.
9 Mfg. Plants · Distributors in 60 cities
PQ

Style 20

LANE

The IDEAL BASKET for

LOOPERS

SEAMERS

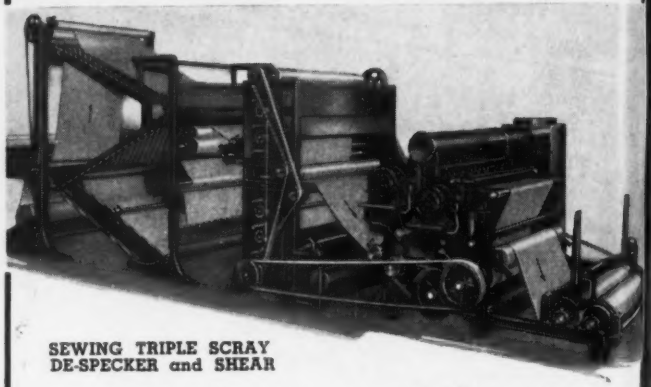
RIBBERS

GENERAL

W. T. **LANE** & BROS., Inc.

Manufacturers : POUGHKEEPSIE, N. Y.

12 INCHES ONLY Not Sheared By DIXIE COTTON SHEAR



SEWING TRIPLE SCRAY
DE-SPECKER and SHEAR

Free Trial Beside Any Other Make

Our ELEXTOP stops the shearing 6 inches in front of seam and starts 6 inches after so exactly 12 inches is left unshorn.

Don't Let Anyone Tell You that Our Shear Leaves Eight Yards not Treated

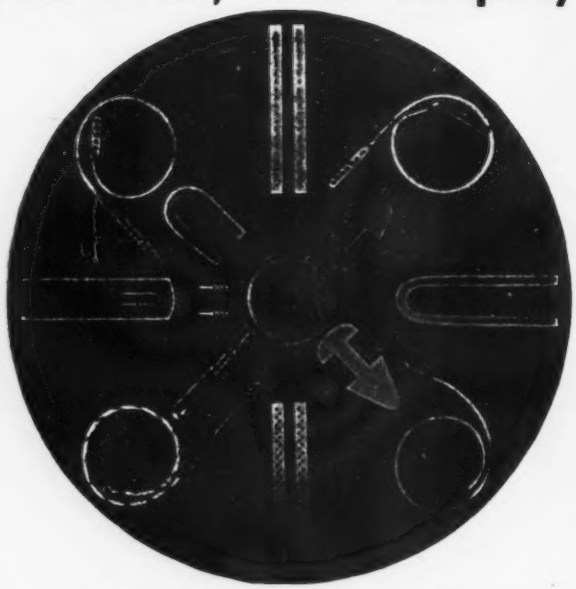
We don't lift the blades nor reverse them.

We don't drop the rests. Merely stop the fly blades a fraction of a second and resume at full speed instantly. All by the ELEXTOP.

Let Us Prove It

PARKS & WOOLSON MACHINE CO.
SPRINGFIELD, VERMONT

Rice Dobby Chain Company



"Service & Quality"

MILLBURY-MASSACHUSETTS
U. S. A.

Samples on request

Southern Representative
MR. JOHN P. BATSON,
P.O. Drawer 1055, Greenville, S. C.

ESSENTIAL TOOLS TODAY
because they save hours of time, prevent costly breakage and long shut downs.

ARMSTRONG-BRAY & CO.
"The Belt Lacing People"
5340 Northwest Highway Chicago, U. S. A.

PROMPT DELIVERY

STEELGRIP Standard Rigid Arm Gear and Wheel Pullers are of improved design. Will not slip from work. Arms are forged and heat-treated. 2-arm, 3-arm and special models. 12 types and sizes. CHAINGRIP Universal Pullers pull wheels, solid gears, pinions, etc., even at considerable distance from end of shaft. Proof-tested chains have both chain hooks and special pulley hooks. 3-ton and 12-ton capacities.

Write for Catalog Sheets

INDUSTRIAL ENGINEERS

Specializing in

TEXTILES FOR MORE THAN A QUARTER OF A CENTURY

RALPH E. LOPER CO.

COST SYSTEMS WORK LOAD STUDIES
PAY ROLL CONTROLS
COST REDUCTION SURVEYS SPECIAL REPORTS

GREENVILLE, S.C. FALL RIVER, MASS.

Lengthen the life of your present belts with

Ensign 371

BELT PRESERVER

CLEANS
PROTECTS
PRESERVES
All Kinds of
BELTS

• You can add years to the life of your present belts—get more power—increase production by treating them with Ensign 371 Belt Preserver.

It cleans and preserves leather, canvas and porous belts, also establishes clean, resilient surface to rubber, composition and all non porous belts, preventing picking, oxidizing or cracking. Resists acid and alkali fumes.

Write for full particulars and for information on our 30 day test. It's a guarantee with no strings attached.

•

Other Ensign Products available for maintenance and production problems.

ENSIGN PRODUCTS COMPANY
3530 EAST 76th STREET • CLEVELAND, OHIO

Choose DEVOPAKE

for one-coat maintenance painting. It has won a host of friends in the textile field!

DEVOE PAINT NEW YORK • CHICAGO

When You Change Your Address . .

It will help us keep your copies of TEXTILE WORLD coming to you each month if you will promptly advise us of any change of address. A penny postcard will do—but please indicate your *old* and *new* address, and any new company connection or position.

TEXTILE WORLD
330 West 42 Street New York, N. Y.

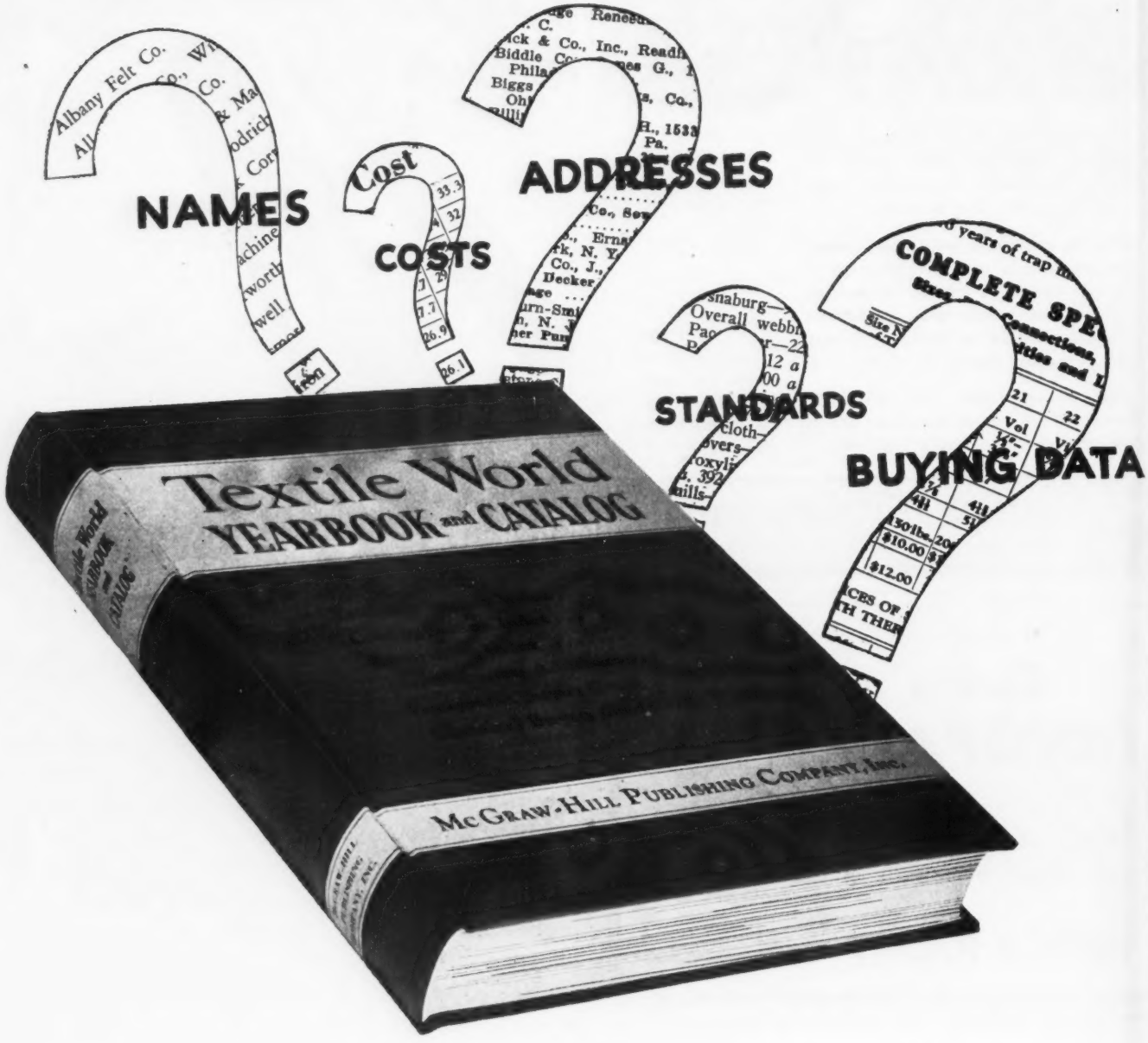
Bullets and Bearings

• Bunting Bronze Standardized Bearings are just as readily available to American soldiers on the production front as are bullets to soldiers on the fighting front—and often just as necessary.

Completely machined and finished, ready for assembly in machine tools, electric motors and all types of industrial equipment, these stock bearings afford quick and economical solution to many urgent production and maintenance problems. Bunting Bearing Bronze Tubular and Solid Bars are machined I.D., O.D. and Ends, saving metal, labor, tools. Bunting Bearings and Bars are immediately available from stock. Ask your wholesaler. Write for catalog . . . The Bunting Brass & Bronze Company, Toledo, Ohio. Warehouses in Principal Cities.

Bunting
BRONZE BUSHINGS • BEARINGS • PRECISION BRONZE BARS

ANSWERS - - - *at your elbow!*



Whatever your buying problem—whatever your mill operating, production, or technical problem, look it up first in the Textile World Yearbook and Catalog, the "looking up place" of the textile industry.

"The Yearbook with the Orange Bands"

SEARCHLIGHT SECTION

(Classified Advertising)

EMPLOYMENT : "OPPORTUNITIES" : EQUIPMENT
BUSINESS : : USED OR RESALE

UNDISPLAYED —RATES— DISPLAYED

10 CENTS A WORD. MINIMUM CHARGE $2.00
Positions Wanted (full or part time salaried employment only) ½ the above rates payable in advance.
Box Numbers—Care of publication New York, Chicago or San Francisco offices count as 10 words.
Discount of 10% if full payment is made in advance for 4 consecutive insertions.

Individual Spaces with border rules for prominent display of advertisements.

The advertising rate is $5.75 per inch for all advertising appearing on other than a contract basis. Contract rates on request.

An advertising inch is measured ⅞" vertically on one column, 3 columns — 30 inches — to a page.

ASSISTANT TO PRODUCTION SUPERINTENDENT REQUIRED FOR MODERN PLANT HAVING SEVERAL THOUSAND EMPLOYEES SITUATED NEAR PHILADELPHIA, MAN TO ACT AS

ASSISTANT TO PRODUCTION SUPERINTENDENT

The man required should preferably be between 35 and 45 years of age. He must possess vigor, initiative and be able to supervise and direct others. Experience in actual production work and the handling of raw materials, stores, shipping, etc., together with some knowledge of factory accounting and office routine would be recommendations.

This plant is largely engaged in important war work but presents a good opportunity for a permanent post-war position in a growing organization. Please do not apply if you are at present engaged in war work at your highest level of skill or do not have reason to believe you could secure release from your present employer.

Applications should give full record of education and experience and will be acknowledged and treated in confidence.

P-651, Textile World
330 W. 42nd St., New York 18, N. Y.

WANTED

Industrial engineer for Woolen Mill in suburban Philadelphia, over 300 employees, to assist managing executive with installation and supervision of production and cost incentive systems.

Opportunity to learn business and eventually assist with management. Essential industry on war and civilian work.

State age, draft status, education, experience and references.

P-656, Textile World,
330 W. 42nd St., New York 18, N. Y.

Don't forget the

BOX NUMBER . . .

When answering the classified advertisements in this magazine, don't forget to put the box number on your envelope. It's our only means of identifying the advertisement you are answering.

WANTED FOREMAN

FOR TIRE CORD BEAMING AND WEAVING

FIXERS

FOR DRAPER LOOMS

A rayon plant in a large midwestern city presents an opportunity to start at the beginning of one of the industry's newest developments. The work is of vital importance to the war and offers exceptional peace-time futures.

Write in full detail, giving age, education, experience, draft status. Interviews will be arranged to suit applicants' convenience.

P-650, Textile World
520 N. Michigan Ave., Chicago 11, Ill.

Over Forty-five Years of Dependable and Confidential EMPLOYMENT SERVICE
for textile mills, converters and selling houses requiring managers, superintendents, stylers, designers, salesmen, overseers, second hands, fixers, etc.
'Phone, wire or write us your personnel requirements.

CHARLES P. RAYMOND SERVICE, Inc.
Phone: Liberty 6547 294 Washington Street, Boston 8, Mass.

POSITIONS VACANT

SEWING MACHINE FIXER wanted by large long established underwear manufacturer in Bennington, Vermont. Permanent position, fine opportunity, pleasant community, guaranteed salary basis for right man. P-628, Textile World, 330 W. 42nd St., New York 18, N. Y.

HOSIERY MACHINE FIXER wanted by New York manufacturer to supervise, repair and instruct on hand operated Circular Hosiery Machines. Excellent opportunity. P-659, Textile World, 330 W. 42nd St., New York 18, N. Y.

POSITION OFFERING permanence and security is open with National Manufacturer. Technical education and mill experience in textiles plus good sales record and following among southern cotton mills essential. Here is real opportunity to establish yourself for the duration and the years to follow. In reply give complete detailed account of experience, education and salary desired. P-658, Textile World, 520 No. Michigan Ave., Chicago 11, Ill.

FIXER for Brinton Knitting Machines, wanted by large manufacturer in New England. Must be capable of handling both plain and fancy work. Excellent opportunity and good pay for right man. P-666, Textile World, 330 W. 42nd St., New York 18, N. Y.

PROGRESSIVE CONNECTICUT thread manufacturer has a position open for a Textile Chemist. Position offers an excellent opportunity to qualified man in the field of Nylon and other synthetic thread manufacturing. Plant located in picturesque New England town with unexcellent educational and living conveniences. P-667, Textile World, 330 W. 42nd St., New York 18, N. Y.

POSITIONS WANTED

TECHNICIAN, with 10 years of practical mill experience in plain, fancy and jacquard weaving mills textile school graduate, desires position in fast moving up to date concern. PW-660, Textile World, 330 W. 42nd St., New York 18, N. Y.

(Continued on the following page)

WANTED SUPERINTENDENT of WOOLENS

Outstanding mill man able to handle all manufacturing problems from purchasing to finished product. Write complete information.

P-642, Textile World
330 West 42nd St., New York 18, N. Y.

EXCEPTIONAL OPPORTUNITY MEXICO

We need a practical superintendent who can assume full charge of our modern bleaching, dyeing, finishing and printing plant. Must personally be able to handle all processes on cotton, rayon and spun fabrics. Plant located in Mexico City, fine living conditions, all conveniences. This is an extraordinary opportunity for a good man to connect with the best textile plant in Mexico.

P-655, Textile World
330 W. 42nd St., New York 18, N. Y.

WANTED

Supervisor for cotton and rayon narrow fabric mill situated in the South. Textile graduate preferred who can design patterns, supervise warpers, weavers and loom fixers. Excellent opportunity for practical man with executive ability. Good salary, permanent position. Write fully to

P-649, Textile World
620 North Michigan Ave.
Chicago, Ill.

Managerial, Manufacturing

Connection Wanted

Textile School graduate, 45, with advanced post graduate work. 20 years' experience wool and cotton systems. Now superintendent. Exceptional background of accomplishments. Capable of controlling cost, waste, labor, etc., and handling manufacturing principle of modern industry. Invites correspondence.

PW-669, Textile World
330 W. 42nd St., New York 18, N. Y.

Attention—COTTON MILLS!

Looking forward to the approaching Post-War Era, we desire to round out our sources of supply.

Leading COTTON YARN producers *desiring complete or partial exclusive sales representation* may prepare to place their account in capable hands.

NORMAN E. McCULLOCH & CO.
SALES AGENTS

86 Tremont St. **Central Falls, R. I.**

POSITIONS WANTED
(Continued from preceding page)

PLANT ENGINEER or Master Mechanic. Age 54, married. Scotchman. Citizen. Thirty-six years practical and technical experience in wool and cotton textile from machinist to superintendent in large organization on maintenance and new installation. Go anywhere. Now available. PW-661, Textile World, 330 W. 42nd St., New York 18, N. Y.

SUPERINTENDENT at present employed as manager of yarn mill desires to make a change, 23 years manufacturing experience, married, 44 years of age. PW-662, Textile World, 330 W. 42nd St., New York 18, N. Y.

TEXTILE PLANT ENGINEER, or Mechanical Superintendent, available for New England, Age 49. One who has had 25 years Textile Engineering experience, in cotton, woolen, and finishing plants. Technical College Graduate. Engineering Experience covers, design, Plant layout estimating purchasing construction, maintenance and repairs, also Power Plants. Now employed as developing Engineer, and consultant, wishes to change. PW-663, Textile World, 330 W. 42nd St., New York 18, N. Y.

BOSS CARDER or overseer of carding and spinning or superintendent of yarn mill. 10 years experience. Go anywhere. PW-668, Textile World, 330 W. 42nd St., New York 18, N. Y.

WANTED

WANTED BY ONE WHO KNOWS the exact spot where each item is most urgently needed. Any type yarns, natural or dyed, cotton, rayon, acetate. Cash. W-641, Textile World, 330 W. 42nd St., New York 18, N. Y.

WE ARE INTERESTED in buying millends, and seconds in all textile materials. Also jobs in childrens and adult blankets, like misweaves, etc. Write particulars. W-664, Textile World, 330 W. 42nd St., New York 18, N. Y.

TEXTILE & HOSIERY EXPORTERS seeking new profitable markets (full development post-war) should communicate at once: W. B. O'Rourke & Company, Textile Agents, 32, Wicklow Street, Dublin, Eire.

REPRESENTATIVE AVAILABLE

MANUFACTURERS' AGENT covering Washington, Oregon, Idaho wishes to take on new lines. Now calling on wholesale and retail trade, Army and Navy. Covering priority and non-priority accounts. Can give your line good representation in this territory on commission basis. Write William Haas & Co., Terminal Bldg., Seattle, Wash.

SELLING AGENT AVAILABLE

An alert, well established Selling Agent, headquarters in New York is desirous of securing non-conflicting materials or findings for distribution to Shoe and Slipper Manufacturers. Commission Basis. Excellent Knowledge of the industry through many years, finest contacts; can develop exceptional sales for your product.

S.A.-644—Textile World
330 West 42nd St., New York 18, N. Y.

CONVERT TO RAYON!

Now is the time for cotton mills to investigate the opportunities for possible immediate and post-war production. An experienced merchandiser and stylist of synthetic fabrics—with established contacts with rayon converters—invites inquiries from interested mill operators.

BO-654, Textile World,
330 W. 42nd St., New York 18, N. Y.

PRIME LOANS TO
CORPORATIONS—Unsecured
INDIVIDUALS—Collateralized
LARGE Sums—LOW annual rates
COLLATERAL DISCOUNT CORP.
Graybar Bldg.—New York City

MILL WANTED

Want to purchase controlling interest or buy outright, ladies' full fashioned mill with 42, 45 and 51 gauge equipment, with capacity to produce 2000 to 3000 dozen per week.
Prefer buying controlling interest as we have sales outlet to handle complete production. All answers will be held in strict confidence.

W-643, Textile World
330 West 42nd St., New York 18, N. Y.

WANTED
Your Obsolete Sewing Threads

Send samples and quantities for quick disposal.

W-636, Textile World
330 W. 42nd St., New York 18, N. Y.

WANTED

Package Dyeing Unit for cheese, 250 or 500 lbs. capacity, preferably monel or stainless steel.

W-670, Textile World
330 W. 42nd St., New York 18, N. Y.

WANTED:

Continuous skein drying machine that will dry from 4000 to 5000 lbs. of coarse yarn daily.

FOR SALE:

Elastic web calender with individual spool take off in perfect condition. Also complete braiding plant.

THE FRISSELL FABRIC CO.
50 Silver Street Middletown, Connecticut

WANTED

Two 48" double-cylinder Breaker Cards, roller type, with 12" ring doffers and two bank double-apron 48" condensers, with or without card clothing.

W-645, Textile World
520 North Michigan Ave., Chicago 11, Ill.

WANTED
Jacketed Soap Crutcher

400-500 Gallon Capacity; Motor Driven; 75 lb. Working Pressure. Also, STAINLESS STEEL or MONEL JACKETED KETTLE with Double Agitating Blades.

Write **W-665,** Textile World,
330 West 42nd St., New York, 18, N. Y.

WANTED TO BUY

Franklin Package Dye Machine, 100 lb. capacity.
Franklin Package Yarn Dryer, 1000 lb. capacity.
2 Extractors, 40" basket.

W-646, Textile World
330 W. 42nd St., New York 18, N. Y.

PROFESSIONAL SERVICES

LANCASTER, ALLWINE & ROMMEL

Interesting booklet concerning Inventions, Patents, Trade-Marks and Copyrights, together with Schedule of Government and Attorney's Fees, sent without obligation. Simply ask for "booklet and schedule."

Established 1915
Patents & Trade-Marks
Suite 448, 815—15th St., N.W. Washington, D. C.

FOR SALE

Sargent CONE DUSTER
Parkhurst 48 in. duplex BURR PICKER
Proctor & Schwartz RAW STOCK DRYER
3—WHITIN 50 inch Card FEEDS
TOLHURST 40 in. EXTRACTOR
15—TOMPKINS KNITTING TABLES

EXTRA-CYLINDERS
(Both Spring & Latch Needles)
KNITTING PARTS
BURR-WHEELS
(All makes and Gages)

2—DAVIS & FURBER 80 in. NAPPERS
PAYNE WINDERS & BOTTLE BOBBINS
2—McCreary DOUBLE ROLL BRUSHERS
Cameron type SLITTING MACHINES
Firsching type SLITTING MACHINES
KNITTING MACHINES — ALL KINDS

Geo. E. Smith Textile Machinery Co.
P. O. BOX 46 COHOES, N. Y.

BELT CONVEYOR
FOR SALE

Approx. 800 Ft., 12 inch "Alvey-Ferguson Co" slider belt intermediate conveyor, with ten drives, take ups & stands. All in excellent condition. We also buy surplus equipment.

AMERICAN SALES COMPANY
1562 Harrison Avenue Cincinnati, Ohio

Offering: 40" Wool Mixing Picker
Used Wool & Worsted Card Clothing
42" Open-Top "Weston" Hydro-Extractors
66" P&W SGLE Cloth Shear with list
48"x48" D&F 3 Cyl. Woolen Cards
66" C&M 2-Roll Steam Cloth Brush
90" C&M Cloth Perch & 100 yd. dial
Gerry Rag Picker & #90 Universal Winder
1000 GPM 5" 2-stage Centrif. Pump

PAUL M. BROOMFIELD
15 Hathaway St. Boston, Mass.

FOR SALE

24—Crompton & Knowles Woolen Looms, 100" reed space, 4x4, 30 harness, direct motor driven but without motors.
3—Providence Machine Co. Slubbers, 11x5½.

F.S.-657, Textile World,
330 W. 42nd St., New York, 18, N. Y.

WANTED

Six-color TEXTILE PRINTING MACHINE, 54" cylinder; Hot Dry Cans, complete with back rigging and motor.

W-652, Textile World
330 W. 42nd St., New York 18, N. Y.

WANTED

One Continuous Automatic Extracting Machine unit consisting of the following:
1—46" Sargent's Model "N" Automatic Feeder
1—50" Sargent's Press Roll Machine (Rubber Rolls Preferred)
1—48" Sargent's Single Cylinder Opening Picker
Will buy complete unit or separate parts and will consider smaller sizes and other makes.

THE KLEARFLAX LINEN LOOMS, INC.
Duluth, Minnesota

WANTED

Automatic looms in place. Will pay generous rental, particularly to cotton mill spinning own yarns (natural or dyed) and willing to sell some of same at ceiling prices for use on these rented looms in own mill. Thus you can also save freight, packing, and rewinding expense on sale of these yarns.

W-647, Textile World
330 West 42nd St., New York 18, N. Y.

--NEED MACHINERY?

Here are Some Selected Items for Immediate Shipment

PARTIAL LIST ONLY

1—60″ James Smith 2-cyl. Shoddy Card Set. Including Bramwell feed

1—60″ Roy Floor Type Card Grinder

28—76″ C & K 4x4—25 harness heavy worsted looms

1—66″ Voelker Double Bed Cloth Press

1—66½″ Parks & Woolson Single Shear

1—106″ 2 Blade Schulze Double Shear

1—500-lb. Bleaching & Dyeing Kier with Circulating Pump

1—28 Stick Klauder Weldon Monel Lined Non-Hoist Skein Dyeing Machine, motor driven, with Aluminum Poles

1—28″ American Copper Basket belt dr. Extractor

3—Button Breakers, 2-46″, 1-52″

1—36″ Windle Doubler & Winder

5—48″ Windle Doubler & Winder

6—Doubling & Winding Machines
1-36″, 5-48″

EXCEPTIONAL COMBERS

2—Sets Whitin Model "C" Combers including:
2—Sliver Lappers 20 end derby back
2—Ribbon Lappers, 4 head
16—Combers, 8 head, 11¾″ lap

LARGE RING TWISTERS

7—80 spindle Hopedale Band Twisters, 4½″ Rings, 5½″ Gauge, Belt Driven
3—104 spindle Hopedale Band Twisters, 4½″ Rings, 5½″ Gauge, Belt Driven
1—110 sp. Hopedale 3″ Ring Twister

FINISHING RANGE

1—142″ 4 roll Mangle with 24 Copper dry cans, batcher, reeves drive, etc.

Dealers in
QUALITY USED
MILL MACHINERY
and
MILL SUPPLIES
FOR COTTON, SILK, RAYON, WOOL
Bleaching, Dyeing, Finishing and Preparatory Equipment

PARTIAL LIST ONLY

1—48″ Tolhurst Copper Basket Belt Driven Extractor

5—Elliot & Hall Power Folding Machines, 1-40″, 4-42″

2—Schultz Fulling Mills

2—Inspecting & Winding Mach. 1-54″, 1-64″

10—50″ Draper Automatic Magazine Worsted Looms, 6 harness, with warp stopmotions, belt driven

11—82″ Crompton & Knowles 4 x 4 Box Woolen Looms, 25 harness, friction dr.

1—52″ Waldron 12 color Printing Machine

1—Pair 60″ x 8″ Squeeze Rolls

2—60″ P. & W. Edge Stenciling & Winders

MISCELLANEOUS SUPPLIES

Quantity of Burr Wheels

352 Brass Tenter Clips

300,000 7½″ Automatic Filling Bobbins

1200 Jack Spools 32½″ between Heads

If you need equipment not listed above please send your inquiry. We may have it or locate it for you.

MACHINERY LIQUIDATING COMPANY

OPA REGISTRATION NUMBER 789

EST. MLC 1923

31–33 West 42nd Street — New York 18, N. Y.

DOMESTIC — TELEPHONE PEnnsylvania 6-8014 — EXPORT

L. J.
McCAFFREY
& SON, INC.,

RECLAIMED MILL LIQUIDATION SUPPLIES

WORSTED CAP SPINNING

CAPS

2420—Bell Lgth. 5¾" O.A. 5" Inside 1-5/16" dia.
670—Conical Lgth. 5-14/16" O.A. 5-5/16" Inside 1½" dia.
1034—Bell Lgth. 7¾" O.A. 7" Inside 1-9/16" dia.
1550—Straight Lgth. 5⅞" O.A. 4¾" Inside 2-1/16" dia.
869—Straight Lgth. 5¾" O.A 4⅞" Inside 2-1/16" dia.
670—Straight Lgth. 6⅛" O.A. 4⅝" Inside 2-1/16" dia.
546—Straight Lgth. 6⅝" O.A 5-1/16" Inside 2⅜" dia.
100—Bell Lgth. 6-9/16" O.A. 5⅞" Inside 1-15/16" dia.
2500—Conical Lgth. 7⅛" O.A. 2-15/16"
1500—Straight Lgth. 6⅝" O.A 2⅜"
583—Straight Lgth. 7½" O.A 1⅞"
174—Straight Lgth. 6⅛" O.A 5" Inside 2-3/16" dia.
331—Straight Lgth. 6-3/16" O.A. 5" Inside 2¼" dia.

SPINDLES

17" SPINDLES

285—Spindles—17" Overall—13⅜" Blade
175—Spindles—17⅛" Overall—13½" Blade
560—Spindles—17¼" Overall—13⅜" Blade
490—Spindles—17¼" Overall—13⅜" Blade
190—Spindles—17¼" Overall—13⅜" Blade
6350—Spindles—17½" Overall—14" Blade
160—Spindles—17⅜" Overall—14" Blade
150—Spindles—17⅞" Overall 13⅛" Blade

18" SPINDLES

450—Spindles—18" Overall—14" Blade
500—Spindles—18" O.A—14-1/16" Blade—3¾" Butt
150—Spindles—18⅛" O.A—16⅛" Blade—2¾" Butt
750—Spindles—18⅞" O.A—15-7/16" Blade—3½" Butt

19" SPINDLES

20—Spindles—19-3/16" Overall—15½" Blade
170—Spindles—19⅛" O.A.—16½" Blade—2¼" Butt
395—Spindles 19⅞" O.A.—16-5/16" Blade—3½" Butt

20" SPINDLES

500—Spindles—20⅝" O.A—16⅞" Blade—3½" Butt
80—Spindles—20" Overall—16⅞" Blade

TUBES

850—Split—6⅛" Outside—1" Whorl
3500—Tubes—5" Outside—1" Whorl — Friction Drive

BOX 495 **PAWTUCKET, R. I.**

TANKS ON TOWERS

25,000 Gal. Cap., 60 Ft. Tower.
35,000 Gal. Cap., 65 Ft. Tower.
40,000 Gal. Cap., 106 Ft. Tower.
50,000 Gal. Cap., 100 Ft. Tower.
50,000 Gal. Cap., 156 Ft. Tower.
60,000 Gal. Cap., 90 Ft. Tower.
65,000 Gal. Cap., 70 Ft. Tower.
100,000 Gal. Cap., 100 Ft. Tower.
150,000 Gal. Cap., 19 Ft. Tower.

OIL TANKS

17—3000 Gal. & 6000 Gal. Cap.
6—12,000 & 18,000 Gal. Horizontal Oil Tanks.
7—1000-5000 & 55,000 Bbl. Cap.

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305 Madison Ave. New York, N. Y.

MACHINERY FOR SALE

1—Cocker 5-can Rayon Slasher
1—Saco-Lowell Hot Air Slasher for 54" beams
1—Saco-Lowell 58-⅛" copper lined Size Box
1—P. & W. 62" 3-cylinder Brush with steam box
1—Emerson Forced Draft Conditioning Oven
5—Bale Breakers, Saco-Lowell, Whitin, H.&B.
1—Brownell Model D Twister 25-¼" gauge, 16 spindles
2—Taylor Tyme Regulators Type 4R7
1—Universal #60-GF 54 spindle Doubler
Quantity Universal and Foster Winders

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Triple Effect Zaremba Evaporator

500 sq. feet per effect. Complete with piping and pumps. Excellent Condition.

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Excellent Equipment, out of stock, here in N. Y. City

1—Haskell Dawes 4 ply Rope Machine.
2—Haskell Dawes 12"x14" Two spindle Formers.
6—Haskell Dawes 8"x10" Two spindle Formers.
1—12 spindle 5"x7" Twister.
10—20 spindle Ball winders. 5" Gauge. Silver Gay makes.
4—12 spindle Ball winders. 8" Gauge. Franklin makes.
1—378 spindle Whitin quiller.
2—Foster make, 40 spindle Tube winders, 6" Tubes.
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75—Triple decker, Compound Wire Braiders. 16x16x24s etc.
10—Flat Knitting machines, for making Camouflage Nets, Fringes, etc; 36" width needle gauge.
8—90 and 100" Rachelle Knitting machines, for making Camouflage nettings.
120—16 carrier Textile and Round Tubular Braiding machines, for making Parachute Cords and wire for Government work.
750—Flat and round Braiding machines, for government work, of all types.

We will consider trading any of the above machines for yarns, various sizes, colors, etc.

4—16 carrier #4 Butt Braiding machines.
20—Universal Tube Winders.

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342 E. 142 St. **ASSOCIATES** **Bronx, N. Y.**

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EXTRACTORS—28" to 60" Belt & Mtr.
EXTRACTOR-VACUUM 72" Pump & Mtrs.
DOUBLING & FOLDING—Combination 60" cloth.
DOUBLERS—Cloth 54" & 66" with clocks.
DRYER-CAN 24 Copper & iron 114" x 23".
DRYER—Loop individual Unit Heaters.
DRYER—Raw Stock 48" Single section.
DRYER-SKEIN—46" Double Conveyor.
DRYER-TENTER—62" automatic guiders.
CALENDER—5-Bowl 47" Mycock Expanders.
WOOLEN CARDS—3 cylinders 48x48 & 60x48.
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LOOMS—C&K 37½" to 125" R. S.
SLUBBERS—12x6x10¼—60 to 74 Sp.
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MISCELLANEOUS:

Bristle Brushes, Rubber Rolls, Expander Rolls. Copper Slasher Cans, 46" Face width, 40"—48" and 60" diameters.

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1—4 Box continuous Dyeing Mche 50"
1—5 Box continuous Soaper 50"
1—6 Bowl 50' Jumbo CALENDER with chasing Arrangement and Swing Folder
1—30' Butterworth Tenter 42"
1—40' Textile Tenter 102"
1—47" P & W (Chinaman) D. & R. Mche
1—66" Watermangle 5 Bowls
1—72" Montford Shear 3 Blades

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PROVIDENCE, R. I.

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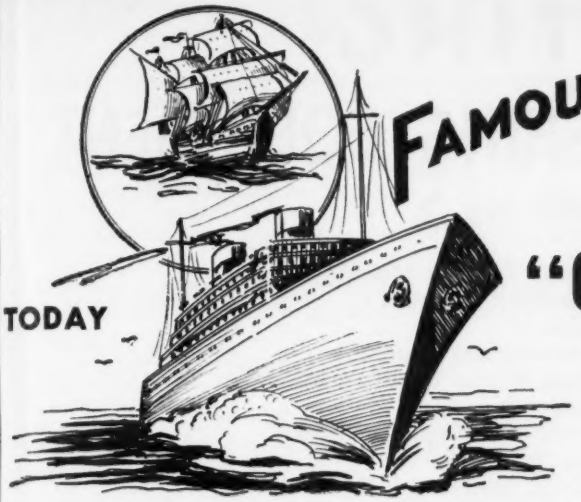

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"CONSOLIDATED"

speeds vitally needed equipment to the production lines of America's victorious War Industry in a matter of days and hours . . . saving often months or weeks of delay. NOW when every moment counts, "Consolidated" is the shortest line between demand and supply—depend upon it!

Supplying Textile Equipment for the DYEING FINISHING BLEACHING PRINTING WEAVING SPINNING OF RAYON COTTON WOOL WOOL FABRICS AND WORSTEDS

PRINTING MACHINES

9—Rice, Barton & Fales 3 to 8 color Print Machines, 40" to 64" wide, with color pans, mandrels, star & furnisher gears, etc.

CALENDERS

1—V.V. B.V. Calenders, 50".
2—Morrison B.B. Calenders, 50" & 60".
1—Morrison 3-roll B.B. Calender. 64".
1—60" Embossing Calender.
1—V.V. 46" Calender.
1—36" 2-Roll Hot Roll Calendar.

PALMER QUETCHES

3—Morrison & V. V. 60" & 72" Palmer Quetch Units.
V. V. Palmer Quetch unit low type 65" wide

AGER

1—18' x 60" Ager.

KETTLES

9—Textile Copper Steam Jacketed Color Kettles, tilting type, agitated, 30 to 200 gallons capacity.

DRYERS

3—National Loop Dryers, 28', 33', 65', 70' lg.
2—P & X Airlay Dryers.
2—V.V. 50" & 66", 5 & 7-Tier Dryer, fin heaters.
1—Phila. Dry. Mach. Co. Hurricane Continuous Skein Dryer.
4—Frank Bailey Truck Dryers with extra trucks for skein & tube yarns.
1—P & S 36' loop dryer 90" poles. Rebuilt by National. Equipped with high speed booster fans, airfins.
1—Single Truck Dryer.

PRINT PADDER

1—3-Roll Print Padder, dry tower with unit heater.

FULLING MILLS

6—Rodney-Hunt Fulling Mills, gear drive.
2—Single Line Fulling Mills, rubber rolls.

CAN DRYERS

300—Dry Cans, 50" to 108" Face. 23" to 84 dia.

HELP PUT OVER THE WINNING PUNCH! SEND US YOUR LIST OF IDLE EQUIPMENT NOW

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2—Haveg Dyeing or Washing Machines, completely enclosed, 51" wide.
1—Sargent 3-Bowl Skein Scouring Machine.
10—K.W. Skein Dye. Machines, 20 to 30 sticks, hoist type.
1—Obermaier 400# Vertical Package Yarn Dye Machine, with wash-off kettle and two motor driven centrifugal pumps.

NAPPERS

8—D & F. & Woonsocket Nappers, 60" to 90".
2—Single Roll Nappers or Brushing Machines.

STEAMING & FINISHING MACHINES

3—Steaming Machines for Tubular Goods.
2—C & M. Finishing Machines for tubular goods.

EXAMINING MACHINES

2—Examining Machines for tubular goods.

CONDITIONING MACHINES

2—Sjastrom Cleaning and Conditioning Machines.

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1—Battery 4—Butterworth stainless steel lined dye Jiggs, 45".
3—Butterworth 60" stainless steel lined dye Jiggs.
Battery of 4 Morrison 50" ss lined. Tilting expanders.

TENTER FRAMES

2—W & J. 50' Frames with Morrison stainless steel clips, 44" & 54" wide.
3—V. V. & W. & J. 60' & 60' Frames.

DOUBLERS

3—P & W. 46" & 66" doubling, reeling & Measuring machines.

FLAT FOLDERS

6—Elliot & Hall Flat Folders, 42" to 60" wide.
1—Grand Rapids Folder.

OPEN WASHERS

1—Continuous Full Width Washer, consisting of 10 sections, 4 nips each section, 66".
1—60" Continuous Boil-off Machine, steel tanks.

ROPE SOAPERS

2—Rodney Hunt 10' Rope Soapers.
1—V. V. Continuous square formation Washer.

SHEARS

3—Parks & Woolson double blade Shears, 66" with list saving device.
1—Parks & Woolson 3-blade Shear, 60½" with list saving device.
4—Shears, some equipped with pattern devices.

BLEACHING

8—Bleaching 4-5 ton Kiers, vomit type.
1—5-ton Kier, circulating type, pump and motor.
2—Lincoln 2-roll chemical squeeze rolls.
2—Arlington Rope Squeezers, with clutch pulley drive.

BEAMERS—BATCHERS

4—V. V. 50" & 55" Beamers.

DECATERS

2—David Gessner & Parks & Woolson 72" & 48" wide, complete with Nash Pumps.

DYE BECKS

29—Dye Becks, Morrison, V. V. and General, 3' to 8', stainless steel and wood boxes.

EXTRACTORS

3—V. V. & Tolhurst 60" Rubber Lined and Copper Basket Extractors.
1—50" Copper Basket Extractor, underdriven centrifugal machine.
1—Tolhurst 48" Underslung Open Top Extractor, copper basket.
10—Burkhardt, V. V. Fletcher, Tolhurst & Haring & Stephens, 48"; copper baskets.
4—Tolhurst & V. V. 40" to 44"; copper lined baskets.
1—King & Gerber 42" Extractor, copper basket.
11—Tolhurst, American Laundry, Adams, Troy and Bach, copper lined Extractors, self balancing, 17", 20", 26", 28", 32" and 40".

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25—Ring Spinning Frames, 160 spindles each, 8½" pitch, 8" traverse, 1¾" ring, 4" front roll.

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2—Textile & V. V. Button Breakers, 60" & 72" brass rolls.

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1—Complete Mercerizing Range.

PADDERS, MANGLES, QUETCHES

4—Textile 50" 2-Roll Dye Padders.
7—Butterworth 50" 2-Roll Starch mangles.
2—Textile 80" 2-Roll mangles.
8—Butterworth & Morrison 2 & 3-Roll Quetches, 50", 60" & 72" wide.
5—Quetches 2 and 3 roll, 36", 50", 66", 72".

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1—Permutit Water Softener, 103" hg, 63" wd, cleanout 13" x 17".
2—10 x 10 vertical softeners, zeolite piping, valves, meters and fittings.
2—Pressure sand filters, 8' dia., by 20' long, complete with pipe connections, valves and fittings.

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1—80" 2-Burner Singeing Machine.

VACUUM PUMPS

2—#3 Nash Pumps.
1—#2 Nash Pump.
1—L5 Nash Pump with double line Extractor.
1—Logemann All Steel Paper Baler.
1—Schick All Steel Press.

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1—Felter
1—Bookwinding Machine
1—Open Width Winding Machine
1—Cloth Press
2—Cloth Washing Machines
2—Starch Kettles
1—100 lb. Raw Stock Dye Vat
3—500 lb. Raw Stock Dye Vats
1—1000 lb. Raw Stock Dye Vat
2—Motor Driven Extractors
2—Electric Hoists
1—3 Section Raw Stock Dryer
1—2 Section Raw Stock Dryer

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1—Fuel Economizer, made by Green Fuel Economizer Co. Equipped with 48—4-9/16" O.D. x 9' long steel tubes, arranged four sections wide; sectional covers front and back; relief valve and blow-off valves; ½ H.P. 3/60/220 volt motor for driving the scrapers. This economizer is of sufficient capacity for use with a 300 to 400 H.P. boiler.

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1 Sargent Yarn Conditioning Machine
1 Gessner D. A. Napper 66"—20 rolls.
3 Copper Slasher Cans, 1—72", 1—60", 1—48" dia.
40 Yarn Boxes (Metal) 10 ½"x18"x28" long.
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5 Whitin 10" Card Coilers.

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7 ROLLS—80" FACE
3 Composition Rolls, 4 Steel Rolls, Hydraulic lift —water-cooled journals. Located in South.
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COMPLETE RAYON WEAVING PLANT
260—Draper Automatic Looms, Modern Slashing, Warping, Winding, Auxiliary Equipment.

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50—35300
11— 9900
3—15400

Union Buttons
10—Button Sewers
10—Button Sewers used as Tackers

Wilcox & Gibbs
5—Lock Stitch

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112 W 140

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4—192-5 elastic machines with elastic pullers.

SPECIAL
1—American 48" Copper Basket underslung Open Top Centrifugal Extractor, Self-Balancing Type on Springs, Equipped with Vertical A. C. Motor. Latest Type. Excellent Condition.

WATER SOFTENING AND FILTRATION EQUIPMENT

2—Permutit Water Softeners, 10' Diameter x 16' Long, with Interconnecting Piping, Valves, Meters and large Quantity of Zeolite.
2—Permutit Vertical Water Softeners, 3' Diameter, 6' High Complete with Zeolite and Fittings.
2—Permutit Type C, Electric Chemical Feeding Devices, Constant Feed.
1—Permutit Vertical Water Softener, 5' x 6' with Valves, Piping and Zeolite.
7—Hungerford & Terry Horizontal Steel Pressure Water Filters, 8' x 20', 8,000 Gallons Capacity, 5/8" Plate, equipped with Cross Piping. 8" Valves and all accessories.
1—Filter Everson 42" x 48".
1—Filter Permutit 6'6" x 6'.

SPECIAL
1—Tolhurst 48" Copper Basket Underslung Open Top Centrifugal Extractor, Self-Balancing Type on Springs, Equipped with Vertical A.C. Motor. Latest Type. Excellent Condition.

TANKS

2—Asbestos Insulated Round Steel Tanks, 6' Diameter x 6' Deep with open Steam Heating Pipe.
1—Steel Tank Open Top, Side Bottom Outlet, 9' Diameter x 4½' Deep.
7—8,000 Gallon Closed Steel Pressure Tanks, 5/8" Plate, 8' x 20' Long, Dished Ends, Riveted.
5—Rubber Covered Open Steel Tanks, 4' Wide, 3' Deep, 6' Long.

COLOR GRINDERS

1—Patterson 7' x 5'6" Silex Lined Pebble Mill, Gear on Head. Belted to 10 H.P., A.C. Motor.
1—Abbe 4' x 6' Porcelain Lined Pebble Mill, Texrope Drive for 5 H.P., A.C. Motor.
2—Patterson 4' x 5' Silex Lined Pebble Mills, Belted to 5 H.P. Motors.

FILTER PRESSES

1—Sweetland No. 4 Pressure Filter with Stainless Steel Screens.
1—Smith & Vale, 32" x 32" 42 Plate Filter Press, Open Delivery, 1½" Cake.

KETTLES

6—Copper Steam Jacketed Mixing Kettles, Equipped with Double Motion, Bronze Agitators, 70 to 350 Gallons Capacity.

FINISHING

Boil Off
1—King & Gerber 54" Continuous Boil Off with Rubber Nip Rolls and Slat Conveyor.
1—Van Vlaanderen 3 Nip Continuous Open Soaper, 3 sets of Brass Nip Rollers, 60" face.

Beamer
1—Van Vlaanderen 50", Beaming and Rolling up Machine. Friction Drive.

Bleach House Equipment
2—8' x 9' Kiers.
2—10' Log Washers.
2—Bleach House Squeezers.

Calenders
1—Van Vlaanderen 3 Roll Finishing Calender, Wool Felt Bowls, Large Diameter.
3—Textile 50" 5 Bowl Calenders.
2—Textile 45" 3 Bowl Friction Calenders.

Can Dryers
1—set of 20 Cans Textile Copper Cans 23" diameter, 54" face, Vertical Stack.
1—set of 18 Cans, 23" x 45" face, Vertical Stack.
1—7 Can Butterworth Copper Cans, 23" diameter, 80" face.
1—Textile Can Drying and Rolling Up Machine, Copper Can 36" diameter, 50" face.

Dye Becks
1—Monel Metal Solid Tub Dye Beck, 5' with Monel Reels.
2—Stainless Steel Lined Sample Dye Becks.
1—Van Vlaanderen 4' Stainless Steel Lined Dye Beck.
1—Van Vlaanderen 19' Cypress Dye Beck.

Dye Padder
1—Butterworth 2 Roll Dye Padder, Brass and Rubber Roll Motor Driven.

Decaters
1—Parks & Woolson 50" Demi-Decater with Blanket, Nash Vacuum Pump and Motor.

Dye Jiggs
6—Textile Copper Lined Dye Jiggs 45" Face.

Doublers
2—Parks & Woolson 54" Doubling and Reeling Machines.
1—Van Vlaanderen 60" Doubling and Winding Machine.

EMBOSSERS
1—King & Gerber 2 Roll Embosser, 54" wide, direct Motor Drive.

Extractors
1—American 48" Open Top Motor Driven Extractor, Copper Basket.
3—Hercules 60" Motor Driven Extractors, Copper Basket.

Folders
1—Eastwood Gray Goods Folder, 60" Wide.
3—E & H Flat Folders, 45" to 60" Wide.

Palmer
1—65" Van Vlaanderen Palmer Tenter Quetsch Unit, with Stainless Clips and Housing.

Printing
1—Werner 50" Single Color Print Machine.
1—Rice, Barton & Fales 7 Color 50" Print Machine.
2—Rice, Barton & Fales, 42" Print Machine, 8 and 11 color.

Tenter Frames
1—30' Windsor & Jerauld Open Tenter Frame with Steam Heating Coils.
1—60' Windsor & Jerauld Tenter Frame with Proctor & Schwartz Housing.

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